Digitized by the Internet Archive
in 2014

https://archive.org/details/wildlifemanageme12nort

North Carolina State Library
Raleigh

WILDLIFE MANAGEMENT
IN
NORTH CAROLINA

NOVEMBER, 1937

Issued by
DIVISION OF GAME AND INLAND FISHERIES
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
With Cooperation of
DEPARTMENT OF ZOOLOGY
NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
Raleigh, N. C.

FIRST ISSUE

Wildlife conservation has definitely left the dark age in North Carolina history. The common practice in this country has been to allow the wildlife resources to dwindle almost to the vanishing point before definite action has been started looking toward their preservation and increase. North Carolina still has a fair abundance of most of the original wildlife species throughout a large part of its area, and by starting research and improved management practices at this time, it should be possible to prevent many of the mistakes of other States and assure a more complete realization of the values of our wildlife for all the people for all future time.

As an aid in speeding the progress of this work, it has been decided to issue a game management and research pamphlet. This represents the first issue.

PURPOSE

The purpose of this pamphlet is to bring together and present in brief form the ideas, management practices, research activities, and progress of game management in the field for the benefit of farmers and landowners, sportsmen, game managers, biologists, and students of game management in this State. Not only are these groups coming to realize more fully the place of wild animal life in our scheme of civilization, but also they are becoming more interested in finding new and better ways of bringing about the increase of the more desirable species and the regulation of those species which may become harmful. By working together, progress will be more rapid.

It is realized that much needs to be learned about wild animal habits and requirements and that the most feasible methods of providing and maintaining their requirements in the field are even less understood. Likewise, it is evident that unless the principles, practices and facts which are developed in connection with research and experimental work are extended to the field comparatively little will have been accomplished. Also, in the training of young men in the technique of wildlife management, it is very essential that actual field experience and research work supplement the classroom studies.

It is hoped that this pamphlet will be a means of disseminating information in order that each group interested in the above activities may have the benefit of what the others are doing, and thereby help to make all phases of the work more useful.

AT THE COLLEGE

"North Carolina State College has started this year a curriculum in the basic principles of Wildlife Conservation and Management. Most of the Freshman and Sophomore years are devoted to the fundamental botany and zoology, English, geology, chemistry, surveying and technical agricultural subjects. The Junior and Senior years are about equally divided between botany and zoology and the technical wildlife subjects. There is an opportunity for young men who are really interested in nature, who love the out-of-doors and who have good sound basic training to develop in this the newest phase of agriculture to be developed in this country. Opportunities are now available for the right type of man who has these basic qualifications and who will get the fundamental training necessary. These opportunities are to be found in the United States Department of Agriculture, in the Park Service, and Bureau of Fisheries, in State Game Departments and as managers for private game preserves. The outstanding qualifications necessary in this work are a real interest in the out-of-doors and in the living things that are found there. In training, it is absolutely essential that young men who fill these positions get a thorough grounding in the sciences of living things, botany and zoology and that they appreciate the importance of the interrelations between them and the technical phases of wildlife management. State College is exceedingly fortunate in having secured a man to develop this field who has had broad training in Game Management and the fundamental sciences underlying Wildlife Conservation. It is also exceedingly fortunate in being able to cooperate with the Game Division of the State Department of Conservation and Development so that it is possible for Mr. Stevens not only to do the teaching at the College, but to help direct the wildlife research and management program of the Department of Conservation and Development."

DR. Z. P. METCALF

At the present time, the following students are taking work in game management at the College:

James C. Darsie (Graduate) _____Raleigh, N. C.
J. Francis Giles (Senior) _____Archdale, N. C.
C. R. Friddle (Graduate) _____Summerfield, N. C.
R. C. Gorham, Jr. (Freshman) _____Washington, N. C.
C. Brown Kugler (Freshman) _____Washington, N. C.
Mark H. Taylor (Junior) _____High Point, N. C.

Due to the fact that game management is still in the pioneering stage, it is desirable that only a few students select this course for a major. It is intended to give these students a good foundation in the biological sciences, and as much training and experience in actual wildlife management as time will permit. There will be a good opportunity for the students to become familiar with field practices and principles in connection with the new Farm Game Program of the Division of Game and Inland Fisheries of the Department of Conservation and Development.

GENERAL COURSE

In addition to the regular curriculum, a general course will be available for agriculture and forestry students and others who might be interested. This course will be given in the winter term of each year. Undoubtedly, men in the other professions can be of considerable help in furthering the wildlife conservation work along with their regular activities and, therefore, the aim of this course will be to present some of the fundamental principles of game management so that other land resource agencies will be able to foster wildlife conservation on a more sound and adequate basis.

THE WILDLIFE MANAGEMENT SEMINAR

At an informal meeting of the students late in September, it was decided to hold seminar meetings at 7:00 o'clock P. M. on the second and fourth Mondays of each month in Room 201 of the Zoology Building on the campus. For the most part these meetings will take the form of round table discussions of game management problems and fields relating to game management. Every effort will be made to secure visiting wildlife conservationists as discussion leaders for these meetings. Also, it is hoped that several members of the faculty will accept invitations to help make the meetings successful. Already, leaders of the Department of Conservation and Development have expressed an interest in this phase of the program.

All who are interested will be welcome.

WITH THE DEPARTMENT OF CONSERVATION AND DEVELOPMENT

"In July, the Division of Game and Inland Fisheries started to work out a more definite plan for its Farm Game Program. An outline of the plan as finally approved is presented in a little

booklet entitled, "Cooperative Farm Game Program." This work is based on the need for: (1) Improving wildlife habitats, and (2) Conserving sufficient breeding stock to replenish the habitats each succeeding year. Copies of the booklet may be obtained from the Division of Game and Inland Fisheries, Raleigh, North Carolina.

The ultimate aim of this work is to:

1. Conserve and promote the interest of wildlife and related sources in general with due regard to all values and all groups of people.

2. Increase the supply of game birds and other game animals and thereby in the long run increase the amount of hunting which will be possible.

3. Increase the amount of satisfactory hunting range.

4. Bring about more orderly hunting to the mutual benefit of landowners, sportsmen, and nature lovers.

Although the past few weeks have been devoted to laying a groundwork for this phase of the wildlife conservation program, already management plans have been prepared for some 11,000 acres scattered throughout the State and many more landowners have indicated their desire to cooperate.

The cooperating landowners and sportsmen undoubtedly will have suggestions and problems which will be of interest to others. These matters will be presented in this pamphlet to the extent that it is feasible to do so. Likewise, the Field Biologists and others interested in wildlife conservation will have a chance to present their problems.

The main work of the Field Biologists is in connection with the Farm Game Program, *but they also have another big job.* Gradually, a survey of the wildlife resources of the State will be made to determine:

1. The original natural range of the important species of game, furbearers, etc.

2. The present range and relative abundance of these same species.

3. What parts of the State are now suitable for the various species.

4. What it will be necessary to do before game species can be encouraged in new parts of the State.

5. What must be done in order to *increase* the numbers of the various species where they exist at present.

With this information at hand, it will be possible to greatly improve and enlarge the present range of several of the im-

portant game species, such as the wild turkey, deer, bear, and ruffed grouse, and thereby produce more and better hunting.

The survey will also formulate plans whereby song and insect-eating birds will be given more consideration, and aesthetic, recreational and educational value as pertaining to wildlife will be more fully realized."

JOHN D. CHALK

THE VALUE OF WILDLIFE

Many books, bulletins and press articles have been written, and untold numbers of speeches made relative to values pertaining to wildlife. In spite of this fact, only a very few people have received a clear concept of just how wild animals fit into the general scheme of life, or how they might be used more effectively in helping man. This lack of general knowledge of wildlife values explains at least in part the reason why wildlife resources have been so badly neglected and so poorly managed in the past. Another reason for this, is the fact that many of the values pertaining to wildlife have not been measured in dollars and cents. From information secured during the past several years, however, it is very evident that a greater realization of wildlife values is being developed, especially in North Carolina.

In the new Farm Game Program which was begun by the Department of Conservation and Development last July, many farmers and landowners are contacted who fully appreciate what the insect-eating birds are doing for them each year. Although, habitats are fairly satisfactory for insect-eating birds in this State at present, it might be worthwhile to attempt to visualize what might happen if all bird life were suddenly removed from our fields, forests, and cities.

People in other parts of the country have been less fortunate in being able to provide for insect-eating birds and as a result have obtained a better idea of damage which might be caused by certain insects. History records that from 1873 to 1876 the Rocky Mountain migratory locust invaded much of the Great Plains region and destroyed almost unbelievably large acreages of wheat and other crops. Government agents who studied this insect outbreak, reported that many fields were saved by the large number of insect-eating birds which had flocked to the areas from the surrounding country.

Another example, is taken from the early history of Utah. The following is quoted from Junius Henderson's book entitled, "The Practical Value of Birds." "Myriads of crickets, having destroyed

one crop in the Salt Lake Valley, were fast ruining the second, which would have left the people, in the absence of transportation facilities or ready communication with the outside world, in dire distress. Before it was too late, Gulls arrived "by hundreds and thousands" and saved the crops from destruction and the settlers from starvation."

Many instances of this sort have been recorded, but suffice it to say that insect-eating birds *are rendering a valuable service* by acting as a check on harmful insects. The U. S. Biological Survey has reported that insect-eating birds protect agricultural crops to the extent of $300,000,000 each year.

Hawks and owls and other predatory animals are for the most part outlawed by many people, but removed from this State, what would happen? Mice, rats, and other destructive forms would increase rapidly and cause large losses to crops and property, and annoyance to many people. Such losses would most certainly exceed the damage of these predators to poultry and game. It has been definitely proven that certain hawks and owls *are naturally harmful* as far as man is concerned, and that normally other hawks and owls are beneficial. These facts indicate the need for learning to know which hawks are harmful and which ones are rendering a service by holding down the numbers of mice, rats, etc.

The beneficial predatory animals ordinarily perform another service which benefits man. In their natural feeding in the wild, they generally take those animals which are easiest to capture. Frequently, quail, rabbits, wild turkeys and other game species become sickly and diseased and thereby become less able to escape from their natural enemies. By destroying these weaklings, the predators prevent the spread of trouble to other desirable animals in the wild, as well as to domestic animals, and to man himself.

Many cases are on record which show definitely that certain hawks and owls and other predatory animals are very valuable, and it is planned to present more information relative to these and other wildlife values in future issues of this pamphlet.

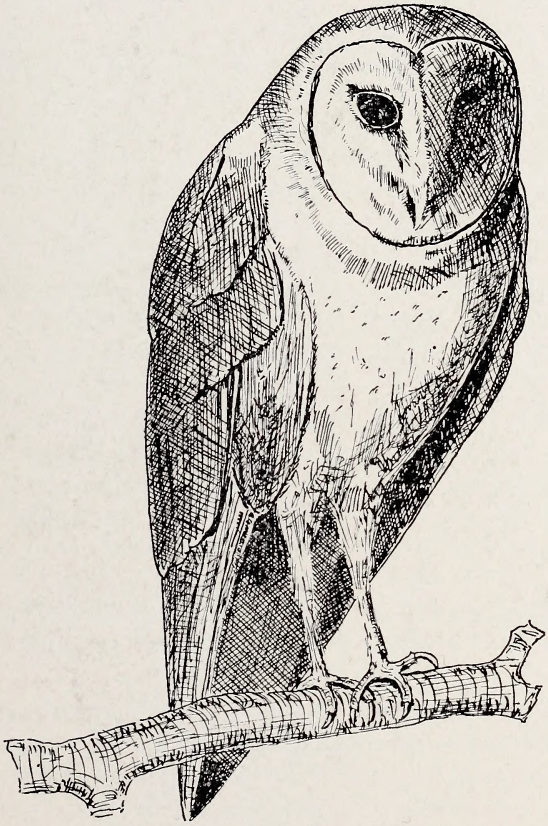
It is desired that all cooperators and interested groups actively take part in making future issues of this pamphlet worthwhile. Your suggestions, criticisms and constructive articles will be greatly appreciated. It is planned to issue the pamphlet monthly. However, in case sufficient good material is not available, the issue will be delayed.

WILDLIFE MANAGEMENT

IN

NORTH CAROLINA

DECEMBER, 1937



ISSUED BY

DIVISION OF GAME AND INLAND FISHERIES

DEPARTMENT OF CONSERVATION AND DEVELOPMENT

WITH COOPERATION OF

DEPARTMENT OF ZOOLOGY

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING

RALEIGH, N. C.

THE VALUES OF WILDLIFE

THE BARN OWL

In the previous issue of this pamphlet, it was stated that some of the flesh-eating birds and other animals were naturally more beneficial than harmful. Information about the Barn Owl (See front page picture) is here presented and the reader may judge for himself as to the value of this species.

For the most part, the determination of what Barn Owls eat has been made by examining their pellets. These night-feeding birds generally swallow in their entirety the small animals which they catch. These small animals on being swallowed stop in the owl's gullet or stomach where the flesh separates from the bones and hair or feathers. The flesh is digested, and the bones and hair after becoming firmly matted together are passed back through the mouth and are generally dropped near the nest or roosting site. By collecting these pellets and carefully examining their contents, it is possible to determine what animals have been eaten. Each different kind of animal eaten has characteristic bones and hair or feathers which help in their identification.

Such examinations have been made of pellets collected from several localities in the United States and other countries by the Section of Food Habits Research of the U. S. Biological Survey and other agencies. It is doubtful, however, that any large number of pellets have been collected and examined from North Carolina. The chart (Fig. 1) shows the approximate proportions of foods of this bird as determined by the examination of pellets collected in localities which are fairly similar to North Carolina conditions.

The two most important items in the diet of these birds (as indicated by the chart Fig. 1) are House Mice and Meadow Mice. The Meadow Mouse is capable of doing and frequently does do considerable damage to field crops and orchards. The House Mouse feeds mostly on small grains and vegetables. Under favorable food conditions these mice are capable of increasing their numbers rapidly. For many years a pair of Barn Owls nested in a tower of the Smithsonian Building in Washington, D. C. The examination of 1247 pellets from this location revealed that these birds had eaten 1987 field mice, 656 house mice, 210 common rats, a few frogs and some 92 birds of which a good number were English Sparrows and European Starlings.

Of course, the foods eaten by birds in different localities will be determined by the abundance of and the ease of capturing the various types of suitable foods present together with the natural preferences of the particular kind of bird. All evidence indicates that Barn Owls are very partial to mice and rats. These rodents are abundant throughout most of North Carolina and are relatively easy to catch. Therefore, it is very apparent that these birds are worth much more alive than dead and by all means should be given every opportunity to increase their numbers.

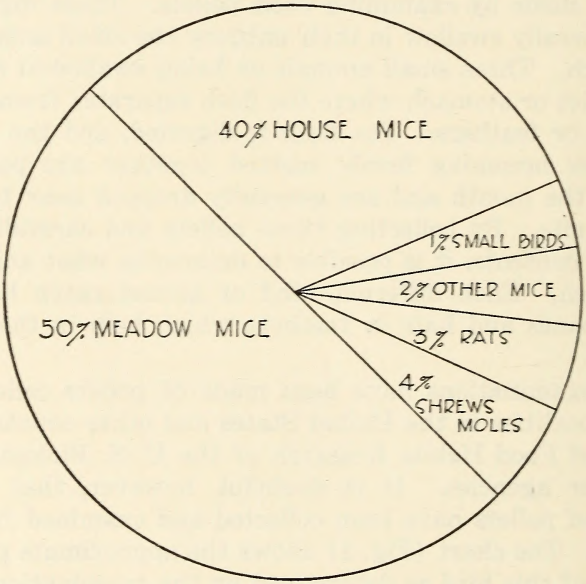


Figure 1.—Some important foods of the Barn Owl.

A family of Barn Owls was located near Greensboro, North Carolina, in the spring of 1935 and was saved from destruction by school children who had learned about the usefulness of these birds. When the owner of this particular farm was informed of the food habits of the Barn Owl, he very quickly replied that he had particularly noticed the lack of mice and rats around his farm building since moving to this place.

The Barn Owl is easily identified by the heart-shaped appearance of it's face, and the small black eyes. Numerous small black spots appear more or less in rows on the yellowish white under parts. The nest is generally located in a hollow tree or

stub, or a deserted building, and most often contains from four to seven eggs. As soon as the first egg is laid incubation begins. The young may vary from just hatched to half grown birds. They are covered with fluffy white down.

Since very little information seems to be available relative to the feeding habits of this bird in North Carolina, the Zoology Department of State College will greatly appreciate any information pertaining to it's presence and abundance.

COLLEGE ACTIVITIES

GAME MANAGEMENT LABORATORY

Much of the preliminary laboratory work required of game management students will be carried out in the regular zoology and botany laboratories. As an aid in carrying out the advanced game management work, a small laboratory is being established in the east end of the third floor of the Zoology Building. This laboratory will be used for studying food habits, life histories and other problems pertaining to game management in the field.

Already some two hundred samples of different kinds of cultivated and wild seeds have been collected. These samples are used in determining foods which are eaten by seed-eating animals. The crops or stomachs of such animals are collected, and by comparing the seeds contained in each stomach with similar seeds in the sample seed collection, it is possible to determine the kinds of seeds eaten.

Of course, many times both vegetable matter and animal matter are found in the same stomach, and because of this, it is necessary to have reference collections of insects, small mammals, birds, and other wild animals.

The Zoology Department has an enormous number of different kinds of insects, and already the gathering of skins and skeletons of other animals for use in this work has begun.

The skeletons of small animals are made usable by the following method:

After the skin, hair or feathers, and surplus meat are removed from the carcasses, they are placed in a metal lined box containing Dermestid Beetle larvae. These tiny grub-like forms multiply rapidly and soon eat all the fleshy parts and leave a perfectly good skeleton. Each skeleton is then placed in a small

box containing a card giving the name of the animal, together with the collection date and place where the animal was taken.

Gradually, the food and feeding habits of game birds, foxes, raccoons, hawks and owls, and other predatory animals will be studied. By sorting out the various small animals found in the stomachs of the raccoons, and foxes, and in the stomachs and pellets of the hawks and owls, it will be possible to determine to what extent these wild creatures are beneficial to man.

It is hoped that every reader of this pamphlet will take an active part in these studies. The Field Biologists will be glad to receive crops, stomachs and pellets for shipment to Raleigh. (See district boundaries and headquarters on back page). It will be desirable to securely tie each crop or stomach separately in a piece of fine mesh cloth in order that the contents will not be lost.

If such material cannot be delivered directly to the College or to the Field Biologists, it will frequently prove very interesting for each hunter to make rough examinations of the crops and stomachs of the animals he captures. Many of the seeds found in quail crops may be easily identified and a better picture of their fight for survival will be gained. Likewise, even a hurried examination of the stomachs of the numerous hawks and owls which are so frequently killed will reveal whether poultry, game and other useful animals had been eaten, or whether the birds were really helping by holding down the numbers of mice, rats and other destructive forms.

SEMINAR

Two very interesting Seminar meetings were held at the college during the past month. Dr. B. W. Wells, head of the Botany Department, attended the first of these meetings and gave a very interesting and worthwhile discussion on the plant life of the sand hill region. The Field Biologists of the Division of Game and Inland Fisheries attended along with the regular number of students. The information presented was very timely as one of the big problems of the Field Biologists in the sandy areas is to determine which plants will grow on these poor soils, and at the same time provide suitable food and cover for the many species of wildlife which inhabit this type of country.

Dr. Z. P. Metcalf of the Zoology Department presented the second very interesting discussion on the way wild animals asso-

ciate with each other. One of the very many points brought out during the evening was that it would not appear advisable to attempt to bring new game birds and other animals into the State without first having carefully studied their habits and requirements and the effect that they might have on the native game animals. Likewise, in the light of Dr. Metcalf's discussion, it would not seem advisable to attempt to bring ruffed grouse from the mountain section of the State and introduce them into the Piedmont or Coastal Plain areas.

THE COOPERATORS' PAGE

Mr. C. W. Stanford of near Durham, North Carolina, has made one mighty good suggestion about the Farm Game Program. He plans to contact his neighbors either in groups or individually and explain the purpose of the game management work on his farm in order that the wrong impression will not be given by the posters which have been put up. This splendid activity undoubtedly will be well worthwhile.

The purpose of the Farm Game Program is not to close a lot of land to hunting. It is intended that better places will be provided for the game animals to live. A little more breeding stock held over this winter will pay hunting dividends next fall and the following hunting seasons. The purpose of the demonstration areas is to show others how game animals will take care of themselves and increase if their wants are provided and if fair numbers are held over for the following rearing season.

Mr. Crowder of near Raleigh, says that not only are his neighbors glad that his farm has been chosen as a demonstration area, but would like to have the same sort of plans made for their farms also.

In this connection, it might be mentioned that the Field Biologists are anxious to work with all landowners and other interested parties whether or not a written agreement is entered into. From the outset it has been apparent that it would take several months to sign Cooperative Agreements for all those landowners who are interested in this program. Therefore, it was decided that only one or a few agreements be written in each township of each county until the entire State has been covered. Undoubtedly, nearly every landowner will realize that this procedure will have a much greater value for general wild-

life on both the cooperating farms and those for which agreements have not been written than would a concentration of the work in one or a few small areas of the State.

A Cooperator in District No. 2, pointed out that skunks were doing him a great service by digging out and eating grubs in his pasture and other fields. Similar observations have been made elsewhere. In one case a group of farmers were ready to outlaw the skunk for digging up young corn plants. An examination revealed that cutworms were doing the damage and the skunks were only digging out and eating the cutworms. A large part of the food of skunks consists of insects.

One of Mr. Rucker's Cooperators in District No. 5 (See back Page) stated that no longer would he dispose of his surplus house cats along the highways because he realized that he was defeating his own efforts to increase game, and because Mr. Rucker had demonstrated to him that bad luck did not follow more humane methods of disposing of undesirable felines.

FUR RESOURCES STUDY

During the past several years the interest in fur-bearing animals has increased considerably. Many people have come to realize that it is possible to receive a money return for the fur crop produced on their lands each year. These facts are apparent due to the numerous inquiries which have been received relative to this matter and due to the increased number of trapping licenses issued.

To make possible a greater return from the fur-bearers the Wildlife Management Unit of the Zoology Department of State College, in cooperation with the Division of Game and Inland Fisheries, is making a study of the important fur-producing animals. More adequate information pertaining to the following factors will be secured:

1. Proper time of year for taking various species to assure more primeness of pelts and greater money returns.

2. Methods of harvesting the crop, skinning the animals and drying the pelts.

3. Methods of increasing and regulating the numbers of fur-bearers on farm and wild lands.

4. The possible returns from pelts and other ways in which fur-bearers may be useful.

North Carolina State Library
Raleigh

5. Marketing problems.

6. The important sources of foods of the fur-bearers and other life history data.

Several years will be required to secure sufficient information about all these problems. However, it is planned to prepare a preliminary pamphlet within the next year to disseminate information relative to proper methods of skinning and drying pelts, and some of the simple things which might be done to increase desirable fur-bearers. Also, by using information secured from fur-dealers and other States it will be possible to make fairly good suggestions relative to the time of year for taking pelts to assure the greatest cash value.

It is the feeling of many people interested in fur resources that the collection of this information and the distribution of the pamphlet will greatly increase the returns to the landowners from fur-bearing animals.

It is not the intention of those interested in this study to disregard the sport of chasing some of the fur-bearing animals with dogs. These animals are all the more valuable because they do provide this sport. It should be possible to maintain the chase without materially interfering with the production of high quality furs.

All suggestions and useful information relative to those problems will be appreciated.

FARM GAME PROGRAM

To date 74 landowners in the State have signed agreements with the Farm Game Program and are making demonstrational Wildlife Management areas of their farms. These cooperating farms comprise a total of 19,353 acres with 13,025 acres as Regulated Hunting areas and 6328 acres as Sanctuary areas. All farms signed previous to November 20 have been posted. It is hoped that a great majority of sportsmen and landowners will take a personal interest in these demonstrational areas and aid the owners in developing them.

All Regulated Hunting Plan Cooperators have been provided with a pad of Daily Hunting Permits. Any person who hunts on these areas is supposed to have in his possession one of these permits signed by the landowner or his agent. In the case of tenants living on the farms a permit may be given for the entire hunting season to each tenant that intends to hunt.

One eleven hundred acre area in Chatham County has been signed as an experimental wild turkey Sanctuary. This tract is located approximately two miles southwest of Pittsboro and is situated in the center of a well wooded section which is suitable for turkeys. It will provide a place where turkeys can increase and restock the surrounding lands by natural means. When attempting to manage turkeys a much larger area is necessary than would be needed to demonstrate the proper methods of increasing quail, rabbits, and other small animals.

A HELPFUL PRACTICE

Often farming operations can be modified without very much expense or trouble and made to be more beneficial to wildlife. The case of Bobwhite Quail ranges being completely altered by the winter plowing of fields is a good example of this.

Individual quail coveys have a regular established range on which they can secure all their necessary food and cover requirements and they will remain on this range as long as it is suitable. The coveys will not concentrate unless forced to by some unusual happening which has reduced the area of suitable range.

Cases have been known where two or three coveys have been driven from a farm by fall and winter plowing. This can be prevented by leaving unplowed corners and narrow strips around field borders.

A common idea is that one small field of lespedeza, cowpeas, etc., will be sufficient for all the game on the farm. This idea would be all right, but the Bobwhite Quail and other forms of game instinctively know that if they bunch up too much some of the hawks and other natural enemies and the hunters will have too good a chance to destroy them. Therefore, rather than pile into one small field they will move out.

DISKING FOR NATIVE FOODS FOR GAME

From now until March 1 is the time for disking small areas for next year's crop of wildlife food plants.

Systematic disking of fields which have been thrown out of cultivation is a very inexpensive as well as highly beneficial method of growing foods for wildlife on the farm.

There are numerous seeds in the soil of these idle fields. A factor which hinders their germination is a lack of warmth from

the sun's rays. They may lie dormant for many years and not decay because of their almost impenetrable outer shell.

The practice of systematic disking brings some of these seed near enough to the surface to be affected by the heat from the sun.

Another factor which has to do with germination and growth of plants is competition from other plants. Broomsedge is a strong competitor since it spreads from the roots. Disking is a practical method of partially eliminating this competition. The plants that take possession following disking tend to increase the fertility of the soil instead of draining it of it's beneficial ingredients since many of these plants are leguminous.

The area set aside for this purpose should be disked in narrow strips leaving an undisked strip in between for cover and nesting sites. All thickets should be left for cover. Also, the strips that are disked may be left the second year and a new strip disked. This rotation may be carried on until the entire area is covered, then the procedure may be repeated. If disking is done on sloping ground, the strips should follow the contour to prevent erosion.

Numerous food and cover plants may be expected to follow this treatment. Some of those which produce food for wildlife are: ragweeds, wild lespedezas, partridge peas, beggarticks, and other wild legumes.

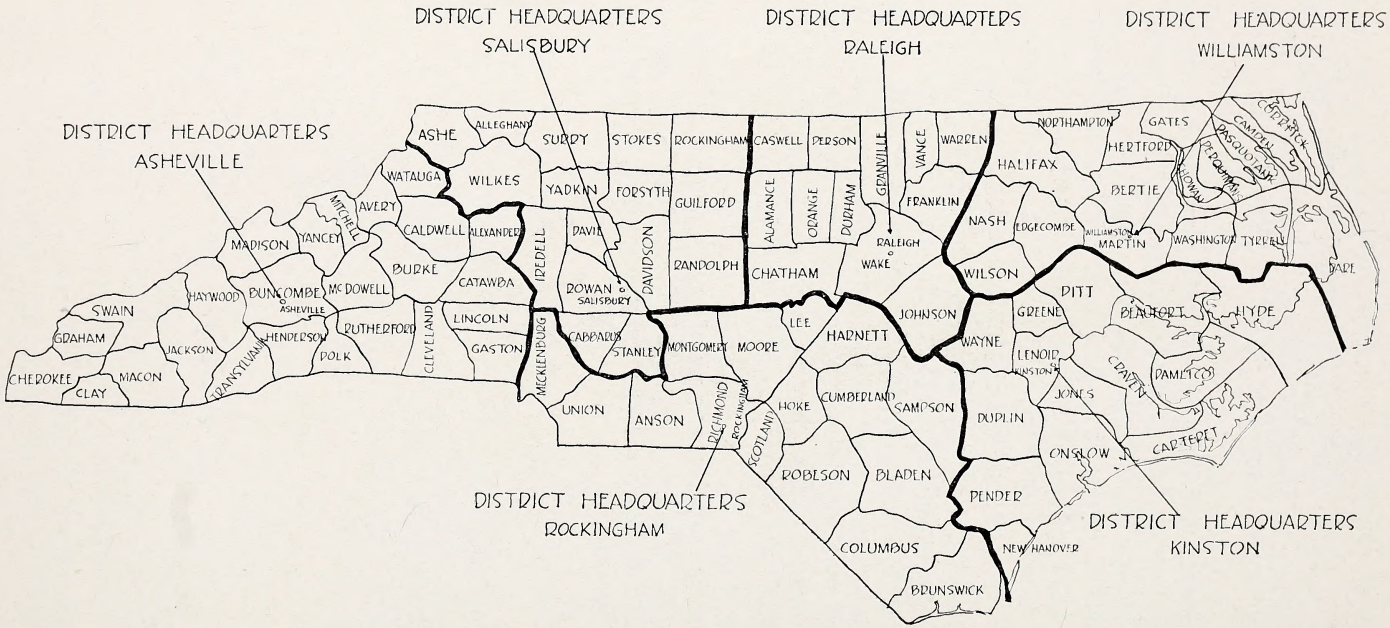


FIGURE 2.—Map of North Carolina showing headquarters of Field Biologists. Heavy lines indicate boundaries of Game Management Districts.

WILDLIFE MANAGEMENT
IN
NORTH CAROLINA

JANUARY, 1938

ISSUED BY

DIVISION OF GAME AND INLAND FISHERIES
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

WITH COOPERATION OF

ZOOLOGY DEPARTMENT OF
NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING

RALEIGH, N. C.

The Old and The New Year

The year 1937 has been the most successful year of the Division of Game and Inland Fisheries since the beginning of the wildlife conservation program in North Carolina. Much of this progress can be directly attributed to the close cooperation which has been given the Division by interested individuals, groups and organizations throughout the State. To these people we extend our most sincere thanks.

All non-migratory forms of wildlife such as, game animals, predatory animals, fur bearers, fresh water fishes, etc., are the property of the State, and it is the function of the State government to properly administer, regulate, protect, and plan improvements for these forms on all lands within the boundaries of this commonwealth. These responsibilities have been delegated to the Division of Game and Inland Fisheries of the Department of Conservation and Development. Since the wildlife conservation program is relatively new in the State, and in practically every other State, for that matter, it is only natural that there would be room for improvement. During the past few years a more unified system of administration has been developed, and the Division is being looked to for planning and guidance in matters pertaining to the many wildlife problems. There will be more regularity and satisfactory results in wildlife conservation affairs as the Division finds itself in position to consider all problems from a State wide basis.

Not many years ago, considerable difficulty was experienced in getting proper consideration given to enforcement of game and fish laws. Back of the troubles were many factors of varying degrees of importance. It was complained that many of the laws were unjust, and often the protectors were accused of being partial to certain individuals and groups. They were looked upon as unnecessary evils in many localities. There has been definite improvement regarding these matters within the past few years. The laws have been revised on a more sound basis and many of the difficulties which faced the law enforcement agencies have been eliminated. The value of these improvements is evident from the way the people have supported the

activitis of the Division of Game and Inland Fisheries. The land owners and sportsmen are being more helpful to the protectors who in turn are able to perform their duties more effectively.

The farm game program which was started last July was one of the most forward steps of the past year. The interest and activities of farmers, land owners, sportsmen, and boys and girls attending agricultural schools have made it apparent that they were anxious to do constructive wildlife conservation work. These groups have wanted help in planning and executing the work which in many cases they have already begun. The purpose of the farm game program is to disseminate the best information available and actually help carry out the field improvements in cooperation with all who are interested in increasing game and other beneficial forms of wildlife. The work is well under way and with the same interest and enthusiasm prevailing, it will be possible to help several thousand additional land owners during the year of 1938. Since a program with all the features contained in this one has not been attempted by any other State, we feel that some real pioneering is being done by our cooperators and other interested groups. It is hoped that everyone will feel free to inform us of any improvements that can be made in the work.

Considerable research and experimental work has been done with the idea of improving farm crops and forest products, but comparatively little has been learned concerning the facts which govern the preservation and increase of wild animals. As all types of field activities progress we realize the need for being able to base our work on scientifically determined facts. Some of this fact finding work is now under way and we hope to make more progress in this direction during the coming year.

Plans are constantly going forward which will improve fishing waters. Two years ago, in the face of some protest from sportsmen, portions of certain streams in some of the eastern counties were closed to all fishing, with the idea that such areas would serve as natural spawning and feeding grounds. The first year success of this activity led to a great extension of "closed to fishing" portions of streams during the past year. Improved fishing conditions in those waters which were closed

for a year caused the fishermen to support rather than object to the work.

With fish and fishing waters as with wild animals of the land there is a great need for determining actual facts. Fish need water to live in, but water is only one of the many factors which determine their success after being liberated. Hatchery raised fish can be poured into our streams, lakes, and ponds, but if satisfactory food and other living conditions are not present, they will not grow and reproduce themselves satisfactorily.

With all these problems in mind, we are looking to the New Year with high hopes of even greater progress.

The Division of Game and Inland Fisheries wishes to express its appreciation to the many State and Federal Agencies which have cooperated in so many different ways. The U. S. Biological Survey, the Bureau of Fisheries, the Soil Conservation Service, the Federal and State Forest Service organizations, and other agencies have helped to make the past year most successful.

JOHN D. CHALK, *Commissioner,*
Division of Game and Inland Fisheries,
Department of Conservation and Development.

Values Of Wildlife

BIRDS AND BOLL-WEEVILS

Entering the United States in 1894 by way of the Mexican border the cotton boll-weevil only ten years later was costing the American farmers ten million dollars annually. In the early years of its existence in this country, it was almost entirely limited to the cotton fields of Texas, but like most animals which have been brought in from other countries, it spread rapidly and soon became one of the most serious pests confronting the Southeastern farmer. Every year large sums of money are invested in poisons for the control of this insect.

Some sixty-six different kinds of birds have been known to eat boll-weevils. It is believed by many people that these pests might be more easily controlled at least in part by making conditions more favorable for their bird enemies.

The following example concerning the cliff swallow in Texas speaks for itself: "Thirty-five stomachs from Texas all contained cotton boll-weevils, averaging eighteen each, the majority containing nothing else." It was estimated that these birds destroyed more than one million of these destructive insects in a week in one Texas county.

Stomach analysis of the field lark, mockingbird, purple martin, barn swallow, phoebe, or "bee martin", cowbird, and red-winged blackbird, all common birds in North Carolina, show that boll-weevils often occur as a part of their food. "One farmer reports his cotton fields full of quail and the entire absence of weevils. He found forty-seven weevils in the craw of one bird."

"The most active of these enemies of the boll-weevil are the orioles, which actually take the insects from the squares of cotton plants, and the swallows which feed upon weevils when they are in flight and seeking to extend their range." This is quoted from U. S. Department of Agriculture, Farmers' Bulletin No. 755. This bulletin also states, that in winter the most important destroyers of these insects are blackbirds, meadow larks, pipits, and Carolina wrens.

Birds act as a natural check on these insects and the extent to which the insects will be held low in numbers will depend very greatly upon the extent to which satisfactory conditions are provided for their bird enemies.

In connection with the insect destroying habits of birds, it is well to remember that normally a number of meals are eaten each day. It is important that the birds eat the insects, but it is even more important that the insects which they destroy are prevented from reproducing their kind. It is also well to remember, that birds and other desirable wild animals must live throughout the entire year. They rely upon insects for food mainly during the summer months. If they do not have satisfactory food, cover, and other requirements during the remainder of the year, they will not be able to maintain and increase their numbers, and therefore, will not be able to continue to check the increase of insect pests. By helping the birds, farmers and others are helping themselves.

Generally speaking, the cotton fields of North Carolina provide only to a very limited extent, the necessary life requirements of birds. If given the opportunity, they will diligently search for insects and other types of food in corn fields, bean and pea fields, lespedeza fields and so on. They also search for food in the fence rows, along ditchbanks, in thickets, and in the odd corners about the farm. Many times fence rows, thickets, etc., are considered as having no value, but they do have a definite value in providing food and cover for game and insect eating birds, and other beneficial forms of wildlife.

More birds will be encouraged by leaving strips of uncut grain and lespedeza next to good cover, and by planting food patches, especially for these wild creatures. Fruit bearing shrubs can be planted and encouraged to grow naturally in the out-of-the-way places with great benefit to many forms of wildlife.

Some of the most beneficial birds nest in cavities of trees and other hollow structures. Many times they can be induced to live in a properly located nest box. Also, it is desirable to leave hollow trees in woodlands for this purpose. Nest boxes which are erected at this time of year will be more likely to

attract a family of birds next spring because the boxes will have had a chance to weather.

BIRDS AND CHINCH BUGS

Most interesting is the incident told by Mr. C. B. Morgan, a cooperator in Whites Store Township, near Wadesboro, N. C. A few years ago, Mr. Morgan had a serious infestation of chinch bugs in his oats. In passing one day he noticed that a covey of quail were feeding on the chinch bugs, and further observation showed that the quail continued their good work until the infestation was completely cleaned up. Mr. Morgan, also stated, that he had always remembered the wildlife on his farm in harvesting his crops, by leaving unharvested a patch of small grain or peas for the birds to feed on, and that by being an eye witness to the chinch bug incident, his belief in the value of wildlife on the farm has been greatly strengthened.

While it is generally thought that the chinch bug has few natural enemies, it has been proven that twenty-four different kinds of birds feed upon this pest to some extent. "Over one hundred of these pests have been found in single stomachs of the bobwhite quail and meadow lark, and over two hundred in one of a brown thrasher." Thus it is evident that much damage which might otherwise be done by chinch bugs is averted by the activities of the ever watchful birds.

College Activities

QUAIL FEEDING EXPERIMENT

About December 1, twelve quail with three pens were made available to State College by the Division of Game and Inland Fisheries. The purpose of securing these birds was to gather information concerning their feeding habits.

One very interesting observation has already been made. During the last two or three years, there has been considerable discussion as to whether or not the fruits of common hedge privets were consumed by birds. These plants are being used effectively in helping to control soil washing in the Piedmont and mountainous sections of the State. They are also recommended as being suitable to plant for improving food and cover conditions for wildlife. More definite information regarding their value has been needed.

At the College four of the birds were placed in each of three pens and were provided with water and gravel. An abundance of the same kinds of food which they had been living on since being mature birds was continuously kept before them. A few fruit bearing privet branches were placed in each of the pens on numerous occasions and without hesitating the birds began to eat the fruits. Several varieties of privet fruits were placed in the pens and the birds seemed to prefer the larger fruited varieties.

It was observed that four birds had consumed forty-seven entire fruits in one day. However, subsequent tests showed that the birds prefer the pulpy material which surrounds the seeds rather than the seeds themselves.

As a further test, four birds in one pen were fed exclusively on privet fruits for approximately eight days. About a quart of the fruits were supplied daily. About a pint of privet seeds from which the pulpy material had been removed was left in the feeding trays each day. Each bird was weighed before the experiment was started and again at the end of the eight day period and no appreciable amount of weight was lost.

Thus it is evident that quail will eat privet berries even though other foods are available, and that if conditions should

be such that other foods could not be secured, these birds would be able to live on privet berries for at least a week. These fruits remain on the bushes during the greater part of the winter and are available during periods when snow and sleet cover the ground. It is very important that such periods be provided for.

It is realized that birds in the wild may not react the same as captive birds. However, Mr. Herbert L. Stoddard, who has charge of several quail preserves in the Southeast, has definitely stated that quail do eat the fruits of certain varieties of privets. Likewise, bobwhite quail and other birds have been observed eating the privet berries on the Camp Lee Game Refuge in Virginia.

Numerous individuals have reported that mockingbirds, cedar waxwings and some of the sparrows have been known to eat the privet fruits to some extent.

Land owners who are especially interested in birds can greatly improve conditions for them by planting a few privet bushes in fence corners, along woodlands and field borders, in gully channels and other out-of-the-way places. It requires only a little effort to take a few of the seedlings from a hedge row and plant them in these sites. Fairly good stands of privet have been secured by planting the seed on badly eroded areas during late winter and early spring. They can also be propagated from cuttings.

The Cooperators' Page

GRAY SQUIRREL MANAGEMENT

Frequently requests come to the Division of Game and Inland Fisheries for information concerning methods of increasing gray squirrels. Two cooperators in widely separated sections of the State have successfully increased squirrels on their property and have used similar methods in doing so.

Mr. S. H. Jones, whose farm is located near Oxford, in Granville County, has estimated that he has over two hundred squirrels inhabiting a few acres surrounding his farm buildings. While this seems like an almost unheard of number for such a small area, a first hand count revealed fifty squirrels playing

around the yard at noon-day, and it was evident that this number represented only a small portion of the squirrels which were present.

For several years Mr. Jones has been very much interested in gray squirrels and has made many improvements for these little animals on his property. He has constructed homes for them from hollow logs and nail kegs. These have been placed in the large trees around the yard and it is Mr. Jones' belief that the squirrels have increased in proportion to the number of new homes which have been erected.

When the den trees are removed from the woodlands, satisfactory places for rearing young and seeking shelter during the winter months are not available, and naturally squirrels cannot remain throughout the year even though an abundance of food is present.

It was further related by Mr. Jones, that this number of squirrels was able to find sufficient food for themselves except during the winter months. During this time, which represents a critical period for all forms of wildlife, it was necessary to feed them corn and previously gathered hickory nuts.

Mr. Brooks, a cooperator, in Stanly County, likewise is interested in increasing squirrels on his farm. During spare time he built from waste lumber and saw mill slabs fourteen two compartment boxes and nailed them high up in trees at irregular intervals throughout his woodlands, and near each box he securely fastened an ear of corn. In less than a month, squirrels from the surrounding woods had moved into his woods and were occupying most of the boxes. He is planning to make a few small wire baskets to hang in the woods and keep filled with ears of corn to help hold the squirrels that have moved in. He hopes that within a year or two these squirrels will have increased sufficiently to give him and his friends squirrel hunting worth talking about.

Nest boxes for squirrels should be placed at least fifteen feet from the ground. The entrance hole should be from two and one-half to three inches in diameter and located near the top of the structure.

In accordance with the plan which he had developed with the Field Biologist, Mr. W. O. Helms, who lives near Marshville, N. C., left a strip of unharvested lespedeza on one side of a field bordering the woods. He has reported that almost any day he can find a covey of quail feeding in the standing lespedeza, and that no doubt, this provision of food is holding this covey on his farm.

Numerous examples of this nature have been noticed in many sections of the State, especially where the Soil Conservation Service is controlling erosion with lespedeza and fruit producing shrubs. These plants serve the dual purpose of controlling erosion and producing wildlife food and cover. Near Greensboro, N. C., a survey of gully areas which were stabilized in this manner revealed that more than ninety percent were being used by quail and other birds. These same areas were used as feeding places by the cottontail rabbit.

In the Piedmont and mountainous sections of the State, the production of food and cover for wildlife is probably the best use which can be made of gully and other severely eroded areas. If all such areas were properly treated, not only would there be a great saving of soil and soil fertility, but also the food and cover conditions would be improved sufficiently to carry many more quail and other beneficial forms of wildlife than is possible under present conditions.

On the average farm, food patches are a definite assurance that food for wildlife will be available during the critical months of January, February, and the first half of March. Frequently, quail and other birds fare well until this period. Then, because of the scarcity of food within their natural range, they are forced to seek their requirements in unfamiliar territory. This, of course, will tend to expose many coveys to their natural enemies and in other ways lessen their chances for survival. If the birds come through the winter in good shape, they will be in much better position to rear a brood of young successfully.

It is well to point out that lasting varieties of seed should be selected to plant in food patches. The varieties that decay readily are not satisfactory for this purpose because the birds will not feed on partially spoiled seeds. Some of the varieties

which have been used successfully in food patches are: brabham cowpeas, iron cowpeas, laredo soybeans, mung beans, German millet, brown top millet, kaffir corn, and the lespedezas. This information is given so that cooperators who care to do so can make plans for developing food patches next spring and summer.

One cooperator says that every time there is another member added to his family, he plants another row of potatoes. He goes on further to say that for every additional covey of quail wanted on the farm, there should be one or two food patches planted.

Farm Game Program

Some 109 farmers with a total of 36,587 acres have signed demonstrational wildlife management agreements under the farm game program.

In addition, the Field Biologists are working with a large number of land owners who are interested in practicing wildlife management, but who have not signed agreements. Where it is desired by such land owners, written plans of field improvements are prepared.

At present, one of the requirements of the program is that the cooperators be responsible for properly erecting the signs which are furnished them by the Department. It is hoped that everyone will try to make a good job of this matter. The posters should be placed about every twenty rods around the boundaries of the farm and along the main highways which pass through the farm. Best results will be obtained by tacking the signs on a rough 10″ x 14″ board and placing them at least eight feet from the ground on trees or other sturdy supports. Care should be taken to trim all brush and limbs so that the signs will be in plain view.

The larger signs explaining the main features of the program are now being delivered to the Regulated Hunting Cooperators. It is planned that one of these signs be placed near the main entrance of each farm in a conspicuous place. There may be a tendency for some hunters to get the impression that the program is designed to reduce the amount of hunting territory. However, it is believed that the larger signs will sufficiently

explain the program so that the great majority of sportsmen will encourage the cooperating land owners, rather than have hard feelings toward them.

FUR BEARERS

One area in Robeson County, near Red Springs, has been signed as an experimental fur bearer sanctuary. For a number of years, Mr. Lacy Buie, the owner, has been interested in raccoons. He has even bought trapped raccoons and released them on his property. Many people in the locality now realize that much good has been accomplished by Mr. Buie's efforts and give him credit for keeping raccoons in that section of the State. A few years ago, raccoons in that section were mighty scarce. During the past season more than twenty of these animals have been caught on the property surrounding Mr. Buie's land. This area will be watched to see just how effective it will be in serving as a breeding and rearing ground for this valuable fur bearer.

Wildlife Protection

The following question is frequently asked: "Why have game and fish laws?" Game and fish laws are not intended to deprive any person of his natural rights to enjoy the wildlife resources. On the other hand, they are public rules for the preservation of wildlife designed to give all of those who are interested an equal opportunity to participate in the sports of hunting and fishing.

The laws are made especially to curb those who would partake of the State's wildlife without regard to the rights of others and without consideration to the perpetuation of these great resources. To assure the preservation of wildlife for the future, no more than the natural increase can be taken each year and in this "taken" figure, should be included those animals which succumb to disease, starvation, natural enemies and unfavorable weather conditions.

If everyone were allowed to kill wild animals at all seasons of the year, the wildlife supply would soon be exhausted. Thus it is evident that if there is to be continued hunting and fishing,

there must be some sort of regulation. The game and fish laws are designed to make this regulation possible.

During the last few years, special efforts have been made to improve the law enforcement activities of the Division of Game and Inland Fisheries. It has been very gratifying to note that with this improvement there has come greater cooperation from the land owners, sportsmen and others who have a definite part in helping to make the game and fish laws successful.

Every effort is being made to place this phase of the Department's work on a business-like basis. Of course, there is a large territory to look after and a large number of people involved. It is realized that the organization is not perfect, but if the same type of cooperation which has been present during the past year continues, the improvement is bound to be very noticeable.

One of the big problems which confronts the game protectors deals with the pre-season and post-season hunters. People who indulge in such activities are working against the best interests of land owners, sportsmen, and others who are interested in the conservation of wildlife. Because this fact is being realized more every year, it is becoming more difficult for the out of season hunters to do very much damage.

The Game Protectors are anxious to get the earnest help of every person in the protection of wildlife in the State.

Winter Feeding Of Wildlife

Generally speaking, artificial feeding of game animals in this State is not a recommended practice, except during times of heavy and extended snows. It is well to give the matter some thought at this time and be prepared for snows which might come during the next few months.

During such times of stress, quail usually retire to thickets and remain there, unless forced to leave in search of food. They can easily be fed in these natural coverts, but when food is delivered, care should be taken not to flush the birds. Materials suitable for feeding include cracked corn, cowpeas, soybeans, lespedeza, wheat, rye, etc. Unless a heavy coating of ice makes it impossible, the snow should be brushed from the ground in

well protected spots in the thicket areas, and the grain placed on these bare places. This will enable the birds to feed in safety. Placing the food in brush piles and honeysuckle thickets is another excellent method. Food should be distributed in all the thickets on the farm where birds have been located.

In the past, much emergency feeding of wildlife has been carried on by both sportsmen and land owners. This is certainly worthwhile wildlife conservation work, and it is hoped that more people will participate during the next crisis which is bound to arrive sooner or later.

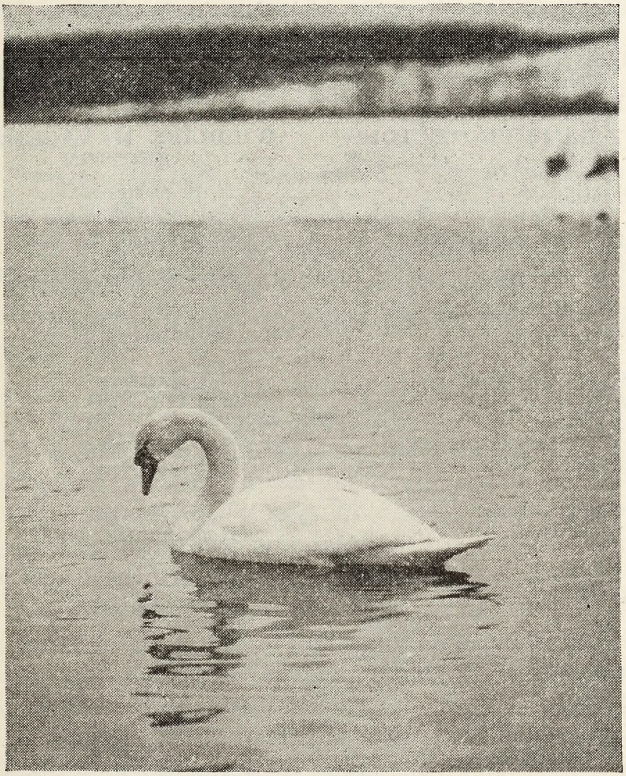
While artificial feeding of this nature may be necessary in some parts of the State during the next few years, the ultimate aim should be to provide for all critical periods through properly developed food patches, shrub plantings, natural thicket developments, and other natural feeding areas.

WILDLIFE MANAGEMENT

IN

NORTH CAROLINA

FEBRUARY, 1938



North Carolina Department Of Conservation And Development

R. Bruce Etheridge
Director

DIVISION OF GAME AND INLAND FISHERIES

J. D. Chalk
Commissioner

E. B. Kugler
Assistant to Commissioner

Ross O. Stevens, *Biologist and Associate Prof. of Zoology, N. C. State College*

DISTRICT GAME PROTECTORS

J. A. Bradshaw,
Asheville, N. C.

J. D. Findlay,
Charlotte, N. C.

H. Grady Farthing,
Boone, N. C.

Fred D. Williams,
Fayetteville, N. C.

L. E. Warrington,
New Bern, N. C.

Rupert E. West,
Moyock, N. C.

E. P. Keen,
Raleigh, N. C.

WILDLIFE MANAGEMENT SECTION

R. B. Armfield,
Supervising Field Biologist
Raleigh, N. C.

FIELD BIOLOGISTS

J. C. Oakes,
Williamston, N. C.

Ben James,
Kinston, N. C.

Roy Komarek,
Raleigh, N. C.

J. W. Kistler,
Rockingham, N. C.

H. C. Rucker,
Salisbury, N. C.

Issued by

DIVISION OF GAME AND INLAND FISHERIES
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
With Cooperation of
DEPARTMENT OF ZOOLOGY
NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING

Raleigh, N. C.

Enthusiastic Sportsmen Meet At Kinston, N. C.

On the evening of January 21, 1938, approximately two hundred sportsmen from a dozen or more Eastern Carolina counties met at the court house in the City of Kinston. The purpose of this meeting was to discuss the apparent decrease in quail and other game animals in that section, and to formulate ideas which might help the Division of Game and Inland Fisheries to make plans for the future.

Every person who expressed himself on this matter, agreed that a shorter season would be most desirable, and it was with satisfaction that this idea was noted among this group of sportsmen. Closing the hunting season would not permanently solve the problem.

The two big factors which must be taken into consideration in increasing and maintaining the game supply are:

1. Provision of satisfactory environments.

2. Regulation of the "take" so that sufficient animals will be held over each winter to replenish the existing covers each succeeding year.

To close the season for a year or two without giving due regard to these two factors would mean that when the season was opened again the slaughter would proceed until the supply was exhausted and the situation would be more critical than ever. Game is a crop, a part of which, under favorable conditions, can be harvested annually.

The desire of the group at Kinston to shorten the quail season indicated their definite interest in the second of the major factors mentioned above. They expressed their desire to leave more birds to raise future coveys. Many of the gentlemen present, indicated a willingness to give the birds more of a chance to live by making it unlawful to use guns which would shoot more than three times before reloading.

The question of propagation of quail on an extensive scale was advocated by some of the men present. Perhaps the desire to request this sort of program has been based on stories which have drifted in from other States. However, it is safe to say, that no State has solved its game problems through artificial propagation.

What could be accomplished here in North Carolina in this

regard? For purposes of this discussion, suppose that all the money taken in from licenses sold to quail hunters, which would certainly not amount to more than $200,000, should be devoted to raising quail in captivity. And further suppose, that only two-thirds of the 31,000,000 acres (approximately) in the State are suitable for quail range. Then under present methods about all that could be expected would be one bird for each dollar spent or 200,000 birds to liberate over some 20,000,000 acres each year. Under an equal system of distribution, which would be demanded, it would mean the placing of one quail on each one hundred acres on the average. With all the money used for artificial propagation, there would be no game law enforcement and no one to see or care if the hunters purchased licenses. The quail supply would decrease without this protection, and eventually the hunters would only be hunting for the birds which were artificially propagated and two birds per year would be each hunter's proportionate share—one bird for each of the two dollars he now pays to hunt all forms of game animals.

To prevent the possibility of this discussion being misinterpreted, it should be mentioned that perhaps there is and always will be a need for a certain amount of restocking operations in any State the size of this one. On large areas, which are nearly or completely devoid of breeding stock, the return of a hunting surplus of game frequently can be brought about more quickly by properly planned and carried out restocking with the desired species, but practically all the leading game men have expressed the opinion that if even a moderate amount of breeding stock is left and with favorable environments, nature will do a better job of building up a wildlife supply than will man through artificial means.

College Activities

A WINTER QUAIL FOOD

In one section of eastern North Carolina where quail have been reported as being more numerous than even Nature's laws would allow, sportsmen have reported that the birds have been feeding very consistently on one particular kind of black shiny seed. These reports were picked up by the Field Biologists and they were successful in securing some twelve quail crops from a group of hunters in that section. Six additional quail stomachs were secured from another locality quite some distance from the first, and all of this material was brought to State College to be examined.

Sure enough, the crops were gorged with seeds, most of which, were all one kind, black shiny, nearly circular, and about the size of two pin heads. They have a very peculiar little hook or notch on one end and by comparing them with seed specimens at the College it was easy to determine that they were seeds of the common Poke Berry (**Phytolacca americana** to those who cannot see the plant for the name). This plant is frequently called Inkberry because of the reddish stain contained in the fruits in late summer and fall. As winter proceeds, the "red ink" dries up and a cluster of seeds remain. Counts have not been completed for all the stomachs, but it is apparent, that each bird had consumed several hundred Poke Berry seeds. One stomach contained 741 whole seeds and numerous fragments.

Early in December, efforts were made to induce the experimental quail at the College to eat the "ink-filled" fruits, but this proved unsuccessful. The birds walked through the fruiting branches which stained their feet and legs; they would occasionally pick at the fruits and then turn away. It has been reported, however, that certain other birds and some kinds of mice eat the fruits.

Approximately a pint of the seeds from one of these plants were made available to four quail in one experimental pen and they consumed approximately 1600 seeds (30 cc.) on the first day of the experiment, and this in spite of the fact that a great abundance of their regular foods were available at all times of the day .

Perhaps the value of Poke Berry seeds as a wildlife food has been too frequently overlooked. Many of the plants will pro-

duce nearly a quart of seeds each year, and therefore even one or a few of the plants scattered over out-of-the-way places on the farm might mean a meal ticket for several birds during adverse weather conditions.

The seeds remain on the large spreading plant well through the winter; the plant will grow in almost any type of soil and one or a few plants on even a four foot square piece of soil should produce a quart or more of seed; they come up from the root stalk each year, and as long as they do not interfere with the production of other crops they might be allowed to stand and do their part to improve game habitats.

It has been reported that the roots of this plant contain poison. However, many people collect the tender shoots which spring up from the large roots in the spring and use them much in the same manner as asparagus is used. Apparently, the poison remains in the root stalk.

Gully Control For Wildlife

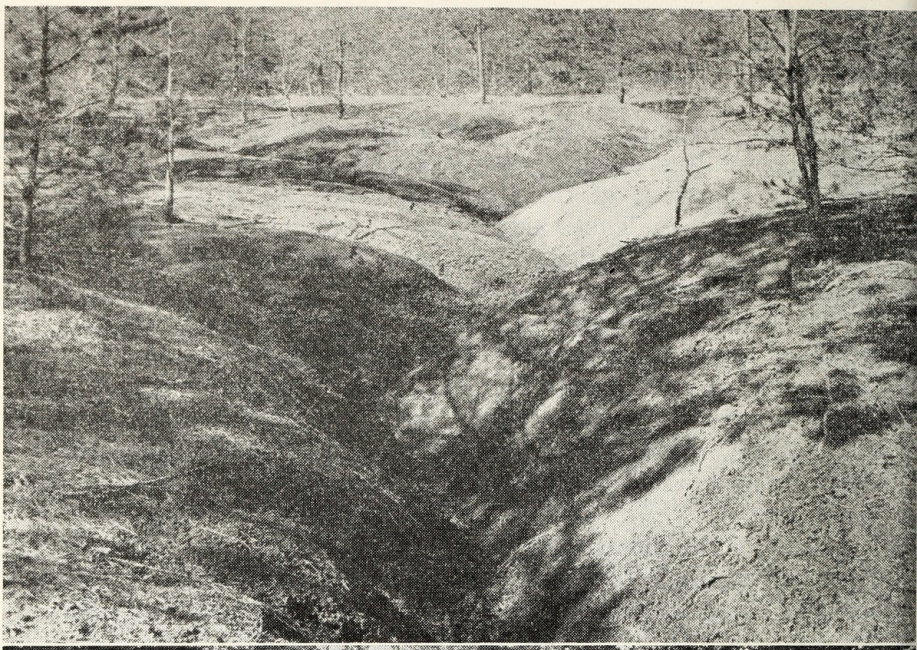
In the Piedmont and mountainous regions of the State, numerous gully and other eroded areas have been removed from cultivation because of the low quality and uncultivatable condition of the soil. These areas vary from a few square yards to several acres in extent and in many cases are not only eye-sores but frequently they continue to eat back into adjoining fields.

The halting of erosion on such areas is very much worthwhile in itself, but to control the erosion and make the areas useful at the same time provides an additional incentive. One practical use that can be made of such areas is to develop them for wildlife. This can be accomplished by covering the areas with erosion resisting vegetation which produces wildlife food and cover.

Many of the plants best adapted to erosion control are among the most valuable for farm game. All the lespedezas including Sericea lespedeza which is perennial (See Figure 2) will thrive on comparatively poor soils if given a chance to become established, and the seeds of these plants are utilized extensively by quail and many other forms of wildlife. One further interest is the fact that lespedeza seeds are generally available during the critical months of January and February when other natural foods have become scarce or have decayed. Some of the most practical methods of gully control for wildlife will be briefly discussed.

Areas which have not eroded to such an extent that deep channels have formed can usually be controlled by seeding and mulching. For this purpose, a mixture of one-third Sericea lespedeza and two-thirds Korean lespedeza applied at the rate of thirty pounds per acre has proved very effective. Any of the annual lespedezas may be substituted for Korean where such is more desirable.

This mixture should be sowed from February 15 to April 1. For best results the seed bed should be well prepared, and if the area is not too rough for farm equipment, a disk might be used to loosen the soil. Where the soil is very hard, it might be advisable to disk over the area several times. If roughness prevents the use of a disk, the soil should be stirred lightly with a rake. An application of stable manure will insure better results. The seed can either be broadcast by hand or sown with a cyclone



Photos by Soil Conservation Service

Figure 1.—Above, a typical gully area in the Piedmont.
Below, same area as represented in Figure 1 at end of first growing season after seeding. The mixture on this area contained Sericea lespedeza, Korean lespedeza and Sudan grass.

Photo by Soil Conservation Service

Figure 2.—Same area as represented in Figure 1 at end of second growing season. The Sudan grass acted as a nurse crop during the first summer while the lespedezas were becoming established. The perennial Sericea lespedeza which has completely taken over this gully area will provide food and cover for wildlife for many years to come.

seeder. If the sowing is done before March 1, it will not be necessary to cover the seed. If performed after this time the seed should be lightly covered.

In order to insure a good stand and satisfactory growth, all badly eroded areas which are seeded should be mulched. Mulch prevents the seed from washing away, holds moisture in the soil, and acts as a fertilizing and shading agent. Pine boughs, pine needles, straw and lespedeza stover are some of the best mulching materials. Mulch materials are usually light and unless a heavy layer is applied the effectiveness will be considerably reduced.

When endeavoring to control erosion on badly eroded areas where deep channels have been formed, the plan should be to exclude as much water as possible and to establish vegetative growth which is hardy and resistant to washing.

The first step might be to divert the water away from the area in question. This can be accomplished by building a diversion ditch. The best outlet for a diversion ditch is a dense growth of shrubs or vines, or a level place with a dense growth of grass.

The next step to be considered is stabilizing the channel of the gully. The cutting action in the channel can be controlled by placing a heavy layer of pine brush in the bottom. Old logs or rocks thrown on the brush will usually hold them in place. If straw is placed under the brush the operation will be more successful. In order to establish vegetation in the gully, shrubs such as coralberry, privet, Sericea lespedeza, blackberry, wild rose, haw, etc., might be planted in rows across the channel. These shrubs will grow well in poor soils and will have become firmly established by the time the brush has decayed. Such shrubs might frequently be collected from the wild and will survive satisfactorily if the roots are not allowed to dry or freeze while out of the ground.

If all the severely eroded areas in the State could be developed for wildlife the result would be a tremendous increase of wildlife food and cover and the halting of much serious erosion. This increase of food and cover should bring about an increase of quail and other game animals.

The work of the Soil Conservation Service of the U. S. Department of Agriculture in its various projects throughout the State has proved the value of gully control for wildlife.

The Cooperators' Page

DITCH-BANKS PROVIDE FOOD, COVER, AND NESTING PLACES FOR GAME.

One farmer in Eastern North Carolina says that he has increased the quail on his farm during recent years by trimming only one side of the ditch-banks late in the spring of each year. A strip six feet wide along the right side of the ditch is not trimmed one year, while the left side is trimmed to the waterline and the silt shoveled out of the ditch. The following year the process is reversed. This does not permit the plant growth to get large enough to interfere with the cultivation of the field, because the plants are not allowed to stand over two years. This strip of old growth provides nesting cover, escape cover, and a protected highway by which the birds can travel out into the fields to feed on insects in the summer and on weed seed in the winter.

The ditch-bank plants also produce seeds and fruits which are relished by quail and other desirable wild animals during the summer months. The plan is said to actually reduce the work of controlling the ditches because there is less trimming to be done each spring and the plant growth tends to prevent caving-in of the banks and silting-in of the ditches. This farm has been hunted lightly every season for several years with a slight increase of the game killed each year.

The ditch-bank cutting practice of this cooperator deserves careful consideration. It is true that proper protection and control of ditch-bank vegetation is a real problem on many farms and the general practice has been to keep down every bit of vegetation if possible. However, by following the above mentioned procedure or a similar procedure, it should be possible to keep the ditches in shape to drain the land effectively and at the same time retain sufficient food and cover plants to serve the needs of quail and other animals.

The Division of Game and Inland Fisheries will be glad to receive suggestions of this nature in the future.

MAKING READY FOR WILDLIFE FOOD PLOTS

Mr. R. L. Welch, Jr., Manager of West Hill Preserve, Matthews, N. C., a cooperator of our Farm Game Program in District No. 4, has for years been interested in wildlife conser-

vation and has been instrumental in getting many farmers in his community interested in the wildlife on their farms. In carrying out his plan of field improvements, Mr. Welch has marked off with stakes the plots that were to be developed for wildlife in order that his tenants will not forget that these areas are reserved from general cultivation.

Experiments underway on this preserve should prove beneficial to all who are interested in producing more natural quail foods. Several kinds of native lespedeza seeds have been gathered and sown on small plots over the farm. The method of handling, amount of seed sown and all data relative to this work is being recorded and results as to germination and growth carefully observed. His experimental disking program for the promotion of growths of beggar-weeds, partridge peas and other native legumes is well underway, and should bring to light some constructive information. Some disking has been done each month since October and will continue through March.

Next summer Mr. Welch is planning to invite groups of neighbors, sportsmen, and other interested parties, to see the demonstrations in wildlife management.

It will be greatly appreciated if all landowners who are cooperating in the Farm Game Program and who plan to have similar field trips will inform the nearest Field Biologist in order that he might attend.

SHRUBS FOR WILDLIFE AND BEAUTIFICATION

Mr. Gaskey, a cooperator in Cabarrus County, plans to make his place more attractive to song birds by providing them with an abundance of wild fruits. He says that he does not think it will cost very much, since the plants will be obtained from thickets on the farm, and the transplanting will be done at odd times. By taking shrubs from crowded thickets, competition for light and soil moisture will be reduced and growth of the remaining plants will be increased.

He plans to transplant flowering dogwoods, wild plums, and black haws along the outside of his pasture fence. This fence, in full view of the house, will add beauty to the surroundings during the spring months after a few years. Along the branch in the pasture he plans to transplant elder berries, and to plant some wild grape cuttings.

"It is impossible to estimate in dollars and cents the good done by the birds on the farm, but to me the most important thing is hearing their songs, and just seeing them around," says Mr. Gaskey.

In the past, there has been a tendency for many people to consider all plants that did not directly provide food for human consumption, or that did not produce saw logs or fire wood, as unnecessary and without any value. This may have been a "hang-over" from pioneer days when one of man's greatest activities was centered around the clearing of land. However, as Mr. Gaskey has indicated some people are not considering these shrubs and other plants as harmful weeds. They are seeing beauty and definite values made available through such plants.

In addition to beautifying the countryside, providing food, cover, and nesting places for wildlife such plants as Mr. Gaskey plans to use will materially decrease soil washing in this State.

It is almost impossible to over stress the importance of wild fruits and nuts to wild birds and other animals. Some birds depend almost entirely upon wild fruits for their food supply during winter months while others use them only for variety in their diet. There are very few birds that do not use some fruits, and quite often it is the presence of such foods that keep the birds around the farm.

It is at this time of the year that we can begin to plan and plant in order to have more song birds. The following list includes only a few of the most important and the most common woody plants of value to wildlife. Many of these can be transplanted quite successfully if care is taken in removing plants from the ground and in selecting the planting sites:

Wild Cherry	Elder Berry	Hedge Privet
Wild Plum	Redbud or Judas tree	Black Gum
Flowering Dogwood	Wild Rose	Coralberry
French Mulberry	Holly	Juniper
Black Haw	Service Berry	Virginia Creeper
	Wild Grape	

Generally, there is an abundance of these shrubs on the farm but more than likely they are either inaccessible as far as wildlife is concerned or else are located in places where they cannot produce fruits in any great quantity. Undesirable shrubs in dense thickets might well be thinned out in order to give food bearing plants a better chance to develop.

It would add greatly to the looks of many farms if some of the above named plants were transplanted near the farm house, or along some of the fences. The beautiful blossoms and many colored fruits would be well worth the slight labor or cost, and the increased number of song birds around the farm yard will be envied by everyone.

The Stray Cat Problem

The widespread practice of releasing unwanted house-cats and kittens in the countryside, there to shift for themselves, should be of interest not only to the sportsmen who hope for better shooting, but also to the farmers who depend upon song and insect-eating birds to control insects. Though frequently performed by well-meaning people with humane intentions such a practice benefits no one and, certainly, birds which provide recreation and assist materially in crop protection are too valuable merely to serve as food for roaming house-cats.

Some idea as to the seriousness of the stray cat problem may be obtained from the following figures: An investigator has estimated that in Massachusetts there is at least one stray cat for every one hundred acres, and that each cat kills an average of ten birds annually. On this basis, the conclusion is reached that cats kill approximately 2,000,000 birds in that State each year. Other estimates indicate that cats in New York State destroy, annually, 3,500,000 birds, and in Missouri the destruction of bird-life through this means, reaches the astounding figure of 12,000,000! If we calculate the number of stray cats in North Carolina on the basis of one cat per one hundred acres, the estimated population of these animals ranging on some 30,000,000 acres in the State amounts to 300,000 individuals. Further, if we assume that the appetites of "Tar Heel" cats are equal to those of the northern states, we find that stray cats in North Carolina destroy 3,000,000 birds each year!

While there is less objection to keeping one or two cats which habitually remain about farm buildings and are known to be efficient rat catchers, such individuals are frequently females producing several litters of young a year. Kittens soon grow up, develop a taste for birds and quickly learn where to obtain their choice foods and thereby make possible a greater destruction to birdlife each year. It is suggested, that Farm Game Cooperators, as well as others, might continually bear in mind that cats are persistent hunters by instinct and if bird-life is to be increased, stray cats on the premises must be reduced to a minimum. Cooperators who for sentimental reasons dislike killing cats may notify the Field Biologist in their district and they will be humanely disposed of.

Where cats are serving a definite purpose, such as protecting

stored grain and other crops from rats and mice, and are well cared for, their existence may be justified. One Farm Game Cooperator who keeps several cats for the above mentioned purpose, has stated that he watches his cats rather closely and if he sees one away from his farm buildings he marks that cat as one to be killed. This is a good practice, as there would be little use of planting food and cover for wildlife if a surplus of cats were roaming the fields and destroying quail, young rabbits, and other game animals.

NOTE:

A NEW FARMERS' BULLETIN

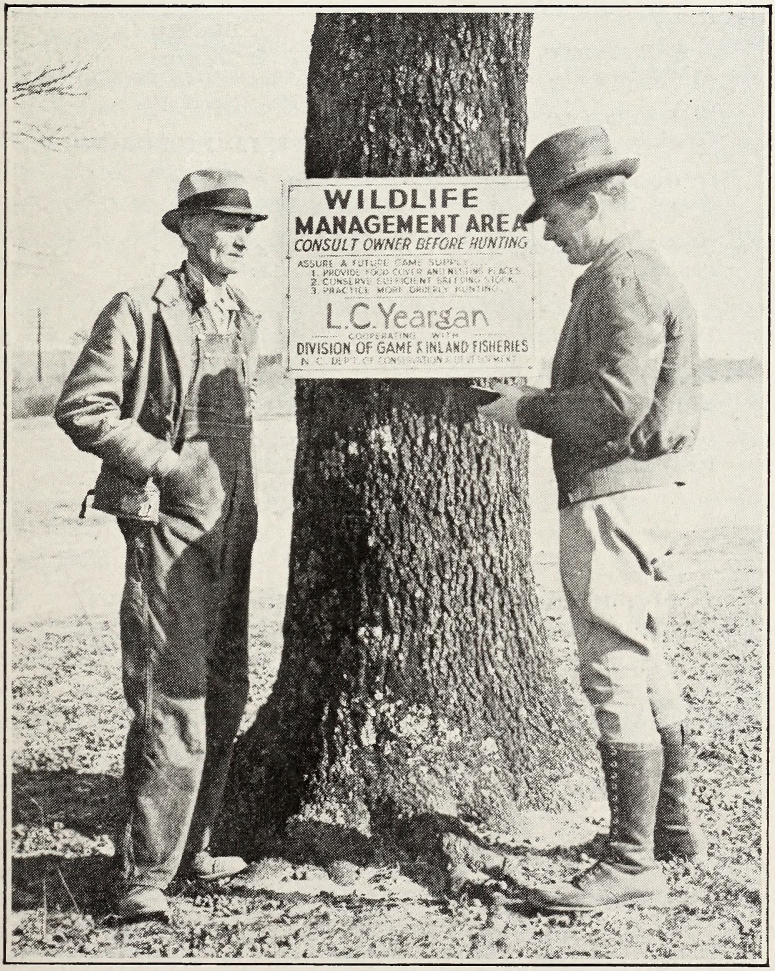
Attention is called to U. S. D. A. Farmers' Bulletin No. 1788, "Wildlife Conservation Through Erosion Control in the Piedmont." This bulletin has just been released and contains many suggestions relative to improving conditions for wildlife in general. While this bulletin was written to apply primarily to the Piedmont region, many of the principles will apply to all sections of this State. Likewise, many of the field practices which have been suggested can be applied quite generally at least with slight modifications. County Agriculture Agents will be glad to help you secure this bulletin.

WILDLIFE MANAGEMENT

IN

NORTH CAROLINA

MARCH, 1938



NORTH CAROLINA DEPARTMENT OF CONSERVATION AND DEVELOPMENT

R. Bruce Etheridge
Director

DIVISION OF GAME AND INLAND FISHERIES

J. D. Chalk
Commissioner

E. B. Kugler
Assistant to Commissioner

Ross O. Stevens, *Biologist and Associate Prof. of Zoology, N. C. State College*

DISTRICT GAME PROTECTORS

J. A. Bradshaw,
Asheville, N. C.

J. D. Findlay,
Charlotte, N. C.

H. Grady Farthing,
Boone, N. C.

Fred D. Williams,
Fayetteville, N. C.

L. E. Warrington,
New Bern, N. C.

Rupert E. West,
Moyock, N. C.

E. P. Keen,
Raleigh, N. C.

WILDLIFE MANAGEMENT SECTION

R. B. Armfield,
Supervising Biologist
Raleigh, N. C.

FIELD BIOLOGISTS

J. C. Oakes,
Williamston, N. C.

Ben James,
Kinston, N. C.

Roy Komarek,
Raleigh, N. C.

J. W. Kistler,
Rockingham, N. C.

H. C. Rucker,
Salisbury, N. C.

Issued by
DIVISION OF GAME AND INLAND FISHERIES
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
With Cooperation of
DEPARTMENT OF ZOOLOGY
NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
Raleigh, N. C.

VOL. II | MARCH, 1938 | No. 3

Note: Volume I, Nos. 1 and 2 have been designated as November, 1937, and December, 1937 respectively. Volume II, Nos. 1 and 2 have been designated as January, 1938, and February, 1938 respectively.

COOPERATION IS THE SOLUTION TO OUR WILDLIFE PROBLEM

By
RUPERT E. WEST

As I write this, the North American Wildlife Conference is in session in Maryland, and at this national affair many things of importance will be discussed relative to bringing back our wildlife. My interest at this time, however, is in my own native North Carolina. It is my opinion that there has been aroused sufficient interest in the protecton of North Carolina's wildlife to enable us to set the pace for others. Fortunately, our interest has been aroused while we still have something to work with.

It is a fact that there is a marked decrease in the number of some of our game birds and other animals. This is particularly true of quail, and since this shortage of quail has aroused the interest of both sportsmen and farmers alike, to where they are willing to do something about it. I think they should know what to do.

Many things have been suggested, many theories have been advanced as to the cause, and as many remedies suggested as to the cure. But it is possible that not enough facts were gathered in either presentment. Nevertheless, the quail shortage has created an interest in trying to do something about it, and that within itself is a step in the right direction.

That quail are not as plentiful in North Carolina as they were ten or fifteen years ago is admitted. But certainly we are unduly alarmed if we think that it is too late to do anything about it, and that what we do must be something drastic.

First, of course, we should determine why there is a shortage of quail and then find the remedy. The fact that I have hunted quail for longer than I would like to admit, does not qualify me as an authority on quail. But as I have also observed the habits of quail in their native haunts, propagated them artificially, and made field tests in game management, it is possible that I may offer something constructive.

In my opinion the cause for our present day quail shortage is:

1. The ever increasing number of hunters, resulting in over-shooting.
2. Repeating shotguns that make it possible for the

hunter to kill more quail before they can reach cover.

3. Modern farming methods that are doing away with hedgerows and other cover that once offered the quail protection from both hunter and predators.
4. GAME HOGS, and a lack of respect for property rights and game laws.

Over-shooting is a cause, but it is created by less than 5% of all the hunters that go afield. That 5%, however, is a dangerous factor, as they kill at least 50% of all quail killed in any one season.

For instance, Mr. A has from two to four bird dogs. He has a car. He knows where practically every covey of quail in his neighborhood is located, and he hunts practically every day during the open season. The present open season has about eighty shooting days with a bag limit of ten birds per day, or a season's limit of one hundred and fifty birds. The season limit is practically impossible to enforce because the game protector has no way of checking the number of birds that a hunter may kill in a season. It is possible for him to kill eight hundred. But even though Mr. A kills no more than his season's limit of one hundred and fifty birds, it does not take many such men long to kill off the birds to the extent that there is not brood stock enough left to restock the area hunted.

If the average hunter kills forty or fifty birds in a season, he is very well satisfied. There are many hunters who will not kill a dozen quail in a season, yet they are NOT the ones who complain that the Department of Conservation and Development is doing nothing to help maintain the quail supply.

Next we have the repeating shot gun to contend with. An expert quail shot can drop from three to five birds on a covey rise with a repeating gun. The average hunter will probably kill one bird and wound two or three. The predatory birds and animals will take care of the wounded. They do not have a chance at recovery.

Also taking a prominent place in the list of causes comes modern farming. The modern farmer using tractors and farm machinery tries to utilize every available foot of acreage on his farm, therefore, we do not have the wide hedgerows and cut over thickets that once were numerous and offered excellent protection for quail.

Stray cats and stray dogs may be listed in the same category as the predatory birds. Dogs are trained to hunt. When they

are left to roam at will during the closed season, when quail are nesting and hatching, it is a wonder that we have any quail left. Cats, of course, are nocturnal hunters as well as day prowlers. They account for a large number of our quail.

Early one morning, driving from a point near the Virginia line to Raleigh, a distance of about two hundred miles, I counted eighty-seven cats skulking along the highway. In speaking of this later on, I heard such remarks as these: "Why, yes, our cat came in the other morning with a quail,"—"Oh, that's nothing, our cat came in with a rabbit." I repeat, it is a wonder that we have a bird left in this country.

The sportsmen can cooperate with the farmer by respecting property rights, and by encouraging farmers to reduce to a minimum the house cats about their premises. The farmer can greatly assist in the restoration of quail and other wildlife by cooperating with the Department of Conservation and Development in its present plan of Game Management. (If the farmer does not know about this plan, information can be had from the field biologist in his territory).

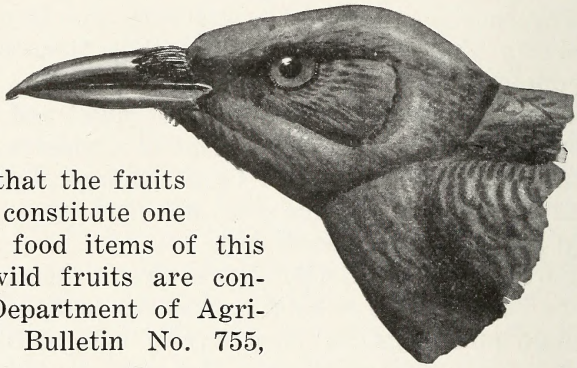
Fortunately, the GAME HOGS are in the minority. For each game hog we have twenty sportsmen. But—even so—there are enough game hogs that they may be listed at the top in the many causes for a quail shortage. The game hogs and game violators can at least be rendered powerless, if not eliminated, if the public will cooperate with the game protectors by reporting all violations and assisting in prosecutions.

We must realize, that even though North Carolina is recognized as having one of the best conservation programs of any State in the country, the Department of Conservation and Development alone cannot replenish our game supply. That must come about through the cooperation of the sportsman and the farmer, these two, working with the Department. It is my opinion that we have nothing to be alarmed about if we will just work together doing the things that WE CAN DO and stop WHINING.

COLLEGE ACTIVITIES

CROWS AND QUAIL EAT POISON IVY FRUITS

During the past winter a few crow stomachs have been sent to the game management laboratory for examination. The most interesting point revealed in the study of the food habits of the crow was that they do not shun the fruits of the common poison ivy (*Rhus Toxicodendron* L.) The stomach of one crow which was killed near Durham contained 134 partly digested fruits of this plant.



The U. S. Bureau of Biological Survey which has made numerous studies of the food habits of crows has found that the fruits of the poison ivy constitute one of the important food items of this bird as far as wild fruits are concerned. (U. S. Department of Agriculture—Farmers' Bulletin No. 755, page 19.)

The Bobwhite Quail likewise will not hesitate to make use of poison ivy fruits, as can be seen by considering the contents of crops of six quail killed in Scotland and Richmond Counties on January 21, 1938. These birds had eaten poison ivy seeds to the extent of 61% of their last meal. Two quail killed in the same section, on the same day, had eaten a total of 101 of the same kind of fruits. The birds collected from these two counties had also eaten the seeds of partridge peas, three kinds of wild lespedezas and wax myrtle fruits. One spider and one grasshopper had been consumed along with a few other kinds of small seeds.

Of 1659 quail collected in the Southeastern States from 1924 to 1929 (The Bobwhite Quail, Its Habits, Preservation and Increase, by H. L. Stoddard, Charles Scribners' Sons, N. Y. 1931, Table 25—page 519) some 56 had eaten poison ivy fruits.

MORE ABOUT POKEBERRY SEEDS

Since the last issue, laboratory examinations have shown that ten birds taken in Beaufort County had eaten a total of 5083 pokeberry seeds (*Phytolacca americana* L). The smallest number of these seeds taken was 198, the largest number 1047. They

constituted approximately 87% of the total volume of the last meal eaten by these birds.

It is interesting to note that pokeberry plants which grew during the summer of 1937 remain standing even until this late date (March 3, 1938) and where the seeds have not been eaten, they remain attached to the plants. They are in good shape and easily accessible to birds and other forms of wildlife.

WILD TURKEY FOODS

Only a few wild turkey stomachs were sent in by sportsmen during the past season and therefore first hand information from stomach examinations is very limited. Oak acorns, especially, the small sized varieties such as water oak, and willow oak acorns, seem to be staple food of these game birds.

One wild gobbler killed in Wake County had eaten 187 Flowering Dogwood fruits, one acorn, two grasshoppers, a few leaves of grass and a small amount of other vegetable matter.

This information is given in order to call attention to the value of dogwoods for wildlife, for in addition to being eaten by wild turkeys, the fruits, buds, and twigs, are eaten by many other game birds and other animals.

It has been gratifying to observe that the idea of considering dogwoods and similar shrubs as unnecessary weeds is gradually passing out of existence. Certainly every landowner who is interested in increasing beneficial game animals can well afford to protect the shrubs in fence rows, field borders, and woodlands.

USE OF CROTALARIA FOR GAME NOT RECOMMENDED

Several requests relative to the value of crotalaria as a quail food plant have been received and perhaps many other people are interested in this same matter.

It has been reported that the seeds of some of the cultivated varieties of crotalaria are poisonous to quail and therefore they are not recommended for planting in game food patches. As far as has been determined, there is no danger to game from growing this plant on the farm since quail, and probably other game animals, disregard seeds which are poisonous.

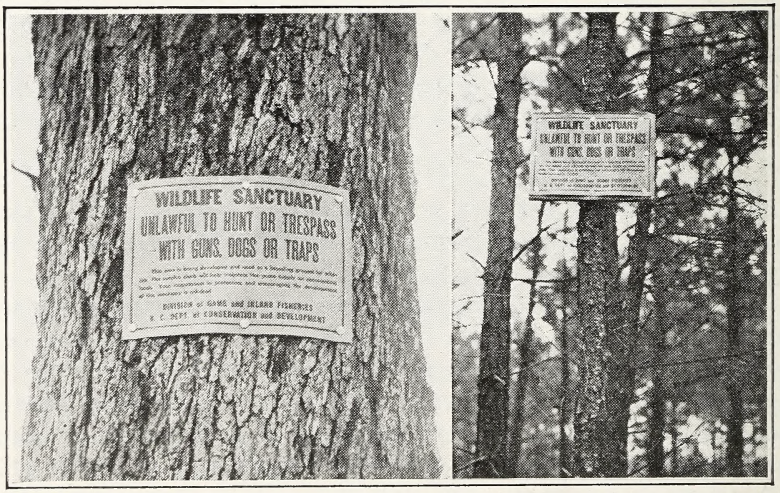
As soon as possible, tests will be made to determine which varieties of cultivated crotalarias, if any, are not toxic to wild animals with the idea that possibly such varieties could be used as soil builders and game food producers at the same time.

These remarks do not apply to the native species of rattlebox (*Crotalaria* spp.). The examination of quail stomachs has shown that the seeds of the wild native varieties are frequently eaten.

FARM GAME PROGRAM

The success of the Farm Game Program will depend to a large extent on the response of the cooperators in making the food and cover improvements which have been planned. Lespedezas have been recommended for planting in many of the food patches and strips which are located near good covers, and the time for sowing these seeds will soon be ended. It will soon be time to plant other wildlife food crops. Several cooperators have already finished seeding their food patches and others have prepared the seed beds. The field biologists have made definite efforts to choose farmers who would make the improvements agreed upon and it is gratifying to see the response.

Signs furnished by the Department have effectively controlled hunting on the demonstrational areas during the past season. So far, only two violations have been reported. Sportsmen who have refrained from hunting on the areas without the necessary permits and cooperators who have prevented illegal shooting on their lands are to be commended.



Some cooperators issued only a few permits to hunt this past season. This was in accordance with suggestions made by the field biologists, but does not signify that a "closed to hunting" policy has been adopted for the regulated hunting areas. In some cases, over-shooting had already reduced the game supply and it

was felt that as much game as possible should be carried over for next year's breeding stock. The scattered demonstrational areas occupy only a small portion of the land in any one locality and surrounding farms will probably receive the benefit of any surplus breeding stock which may exist.

We are pleased to report that with only a few exceptions farm game coperators have posted their lands satisfactorily. However, since in a few cases the signs were not properly placed, the following instructions are presented again:

Farm game posters should be placed about eight feet from the ground and spaced twenty rods apart. In nailing the signs to large trees, two inch roofing nails should be used. When large trees are not available, the signs should be tacked to 10" x 14" boards and securely nailed to posts or small trees. Old buildings or tenant houses often provide good locations for signs, and an effort should be made to place them in conspicuous places, especially where the roads enter the farm.

The picture on the pamphlet cover shows the proper way to put up the large "Wildlife Management Area" signs. Two or three wide boards cut the width of the sign and held together with cleats nailed on the back provide a sturdy, flat surface to which the sign may be fastened with large tacks. These signs should be placed near the main entrance to the cooperator's farm.

To date, 136 agreements covering 50,241 acres have been signed under the Farm Game Program. Of this area 47,480 acres in 104 agreements are in regulated hunting areas, 5,337 acres in 7 agreements are in temporary sanctuary areas, and 7,434 acres in 25 agreements are in five-year sanctuary areas.

GROW SERICEA LESPEDEZA FOR GAME

In planting winter food patches for quail and other birds, a plant should be selected that will seed heavily, hold seed on the stems until late winter and early spring, and remain erect in heavy snows. Sericea lespedeza has these advantages. This plant is used widely on quail preserves throughout the South, and is considered by Wildlife Technicians as one of the best winter quail foods discovered to date. Sericea is a perennial which may be planted on poor soil with good results. It is a valuable plant for erosion control, a good soil builder, and is used as a hay crop in some localities.

The best procedure in sowing Sericea lespedeza for wildlife is to establish small plots in open woodlands, odd corners, eroded areas, field borders, and other places which might be used to advantage. The plots need not be large because a few square yards of Sericea lespedeza will product an abundance of seed. Such patches well distributed over a farm will furnish food for wildlife during winter and early spring months.

Occasionally, Sericea lespedeza is described as a two year plant. During the first year, growth is frequently devoted to root development. Consequently, a poor stand the first year should not lead to discouragement. Once established, the plants become very vigorous and are able to withstand competition from other vegetation. Single plants have produced as many as a hundred stems to a crown.

Excellent results may be obtained from sowing either scarified or unscarified Sericea lespedeza seed. Unscarified seed should be sown six weeks earlier than the regular planting season. After April 1, better results will probably be realized by using scarified seed. Successful stands have been obtained from scarified seed plantings as late as June. In food patches, fifteen pounds of scarified seed per acre will produce a stand sufficient for wildlife purposes, and if unscarified seed is used, twenty-five pounds per acre will suffice. For planting this crop, a firm seed bed will generally give better results. If planted after March 1, the seed should be lightly covered.

UTILIZATION OF SERICEA LESPEDEZA BY COTTONTAIL RABBITS

Observations of two and three year old Sericea lespedeza patches show evidence of considerable amounts of seed being eaten by cottontail rabbits. Practically all wildlife food patches seeded during the spring and summer of 1937 on the Reedy Fork (Greensboro, N. C.) soil conservation project have been frequented by these animals, and the quantity of seed eaten ranges from those gathered from a few scattered plants on some areas to one-third the entire crop on others.

In many cases, the rabbits have neatly severed the Sericea stalks eight inches to ten inches from the ground, and then have eaten the seeds from the fallen stalks.

In many States, definite efforts are being made to increase the number of cottontail rabbits, and while there is no special concern about the abundance of these animals in this State, the above observation is very much worthwhile as it may help game technicians in other places. (The above information was obtained during a conversation with E. V. Floyd, Assistant Biologist, Soil Conservation Service, Greensboro, N. C.).

OLD TOBACCO SEED BEDS AS WILDLIFE FOOD PATCHES

Mr. Fred D. Williams, District Game Protector, has suggested a practical idea to establish hundreds of wildlife food patches throughout most of North Carolina. Mr. Williams is taking an active interest in getting farmers to sow their old tobacco beds with suitable bird feeds. These beds are well situated and are in a condition to be easily prepared for this purpose. Since they are usually located in new ground where the soil is fertile, a good seed crop should result. Seed patches will go a long way in providing a much needed winter food supply.

In sowing old plant beds some thought should be given to the crop growing in the fields nearby. For instance, if an old bed is located near a large field standing in peas that will not be turned under until late the following spring, the bed will be more beneficial and afford greater variety of foods if some crop other than peas is planted.

On farms where small grain seed is available, the tobacco beds may be sowed to wheat or rye in the fall and broadcast with lespedeza in February or March. A two fold purpose will be accomplished by this method; the small grains will be available from June on through the summer and the lespedeza will supply food during the winter, a most critical time of the year for quail. Many combinations of foods may be sowed in both fall and spring, and no doubt most farmers have a surplus supply of seeds on hand. To make the patches as permanent as possible and to save reseeding all the plots each year, an effort should be made to get some lespedeza preferably the Sericea variety in all mixtures.

Mr. James Robinson, Sampson County Game Protector, in Mr. Williams' District, is taking this idea to the farmers of his county, and he reports that almost to a man these progressive land owners are preparing to take hold and put this plan across.

CONTROLLING THE HOUSE RAT

Since the house rat (otherwise known as the Norway or brown rat) does considerable damage annually in North Carolina, the following information is presented in regard to its control.

Rat control can be most effectively carried out during the winter months. Due to a lack of natural foods at this time, the animals are more concentrated about houses and other buildings and they will more readily eat poisoned baits. While trapping, gassing, and hunting with cats and dogs may be used successfully in some cases, the use of poison baits is probably the quickest method for getting satisfactory results.

The Government recommends a toxic red squill bait which usually will not seriously affect wild birds and other wild animals or farm fowls; its action is slow, causing death in eight hours to several days, thereby allowing the rats time to seek their burrows before dying, and thus removing most of the possibility of bad odors. Such baits disintegrate in a few weeks, and hence, do not require gathering up.

Care should be taken to get a *highly toxic squill.* Other animals do not like the taste of squill, and ordinarily will not eat baits containing this material.

Suggested formulas: Mix one ounce of red squill with sixteen ounces of lean hamburger meat or canned fish; or one ounce of the squill with eight ounces of corn meal and eight ounces of oatmeal. Add a small amount of water to the meat and cereal baits.

The placing of these mixtures should be made late in the day in order that the rats may find fresh baits. Such material should be placed in runways, under flooring (where flooring is close to the ground), behind doorways and barrels in outbuildings, and in other places where the rats seek food and shelter, and where other animals cannot readily get to the materials.

Rat populations are governed quite largely by the amount of food and shelter which is left to their disposal. Therefore, much can be done to restrict their numbers by ratproofing old buildings and building new storage structures at least a foot or two off the ground. Store grain and other food materials in ratproof bins or boxes and remove unnecessary debris from the vicinity of farm buildings.

For additional information relative to the control of rats, write to George B. Lay, N. C. State College, Raleigh, North Carolina.

THE NORTH AMERICAN WILDLIFE CONFERENCE

The third North American Wildlife Conference was held in Baltimore, Maryland, from February 14 through 17. The purpose of these conferences is to disseminate information, build up interest, and report progress. It has been very gratifying to note the manner in which the three great nations, Mexico, Canada, and the United States have been working together to solve the wildlife conservation problems which affect the whole continent.

It has also been gratifying to note, and this will be of interest to every wildlife enthusiast, that wildlife conservation has been placed on a firmer foundation. With the same kind of progress continuing, there should be no fear of not having a wildlife supply for future generations to enjoy.

The conference discussions brought out the need for greater care in planning and carrying out all land activities, such as drainage for mosquito control, pollution of waters from soil erosion and manufacturing plants, etc. Contrary to nearly all such meetings in the past, not a single person who professed to know anything about game management took the floor to contend that all game problems could be solved by indiscriminate killing of hawks and owls, and other predatory animals.

On the other hand, J. N. "Ding" Darling, President of the North American Wildlife Federation, stressed the importance of providing more natural food and cover areas and other environmental requirements. These same ideas are back of the Farm Game Program which is already well under way in this State.

In June of this year, the International Meeting of Game and Fish Commissioners is to be held in Asheville, North Carolina. This will be a very important meeting. A more complete announcement will be made in a later issue of this pamphlet.

THE SPARROW HAWK IS BENEFICIAL

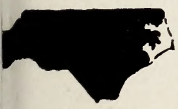
Probably the most common and certainly one of the most beneficial hawks in North Carolina is the little sparrow hawk which in spite of its innocence, suffers destruction during thoughtless, indiscriminate, hawk and owl campaigns. While it may at times be accused of taking an occasional small bird, its food is chiefly insects and rodents. Frequently, it may be seen perched on the tip of a pole projecting through the top of a haystack in its characteristic setting, a harvested field. From this advantageous position it sights its prey below, swoops down gracefully and seizing a grasshopper in its small talons returns to its perch there to devour it. The accepted common name of this beautiful hawk is somewhat misleading for it consumes large quantities of grasshoppers and more appropriately might be called "Grasshopper Hawk."

In the course of other duties two of our field men collected a sparrow hawk for the study collection at State College with the intention of making it into a study skin when they stopped for the night in a small town. Space was obligingly made available for preparation of the specimen in a friendly country store and as the examination proceeded a group of curious spectators gathered around to watch the procedure. When the hawk was dressed, the skin stuffed with cotton and the specimen properly labelled, the carcass was cut open to determine what it had been feeding on. After the crop was examined and found to be empty, the gizzard was opened and its contents laid out upon the table. This material was then carefully separated and the contents became readily recognizable. Fifteen crickets, most of them whole, portions of several grasshoppers and the remains of a cotton rat which was identified by teeth and undigested parts of the skull, were contained in the gizzard. One of the spectators who had remained silent during the performance shifted his cud, and simultaneously releasing a stream of tobacco juice which reached the sandbox with expected accuracy, burst forth with a somewhat drawled exclamation of surprise, "By Gawd, them things oughn't to be killed." While there may be some justifi-

cation for locally reducing the numbers of Cooper's and sharp-shinned hawks, the only two varieties that do any serious damage to game and song birds in North Carolina, the sparrow hawk which is often seen perched on telephone wires along the highways, certainly should not be molested.

During the past few years increased interest in wildlife conservation has developed remarkably and if the energy behind this movement is directed through sound biological channels the future of an important natural resource is assured. Throughout the country groups of sportsmen and nature enthusiasts are organizing wildlife clubs dedicated to the conservation of wildlife but unless intelligent thought is given to their programs wasted effort may result. Remember, "wise use" is the accepted definition of conservation. To use anything wisely implies the application of sound judgment and sound judgment can be based only on unbaised information. Therefore, if you are to command respect as a conservationist acquaint yourself thoroughly with wildlife problems. This is particularly important when predatory control proposals are under consideration, a question which too frequently generates much heat but no light. A better understanding of the habits and interrelationships of the so-called predatory animals such as the hawks and owls will bring about an appreciation of the important part they play in the complex web of life.

April
1938



North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA DEPARTMENT OF CONSERVATION AND DEVELOPMENT

R. Bruce Etheridge
Director

DIVISION OF GAME AND INLAND FISHERIES

J. D. Chalk
Commissioner

E. B. Kugler
Assistant to Commissioner

Ross O. Stevens, *Biologist and Associate Prof. of Zoology, N. C. State College*

DISTRICT GAME PROTECTORS

J. A. Bradshaw,
Asheville, N. C.

J. D. Findlay,
Charlotte, N. C.

H. Grady Farthing,
Boone, N. C.

Fred D. Williams,
Fayetteville, N. C.

L. E. Warrington,
New Bern, N. C.

Rupert E. West,
Moyock, N. C.

E. P. Keen,
Raleigh, N. C.

WILDLIFE MANAGEMENT SECTION

R. B. Armfield,
Supervising Biologist
Raleigh, N. C.

FIELD BIOLOGISTS

J. C. Oakes,
Williamston, N. C.

Ben James,
Kinston, N. C.

Roy Komarek,
Raleigh, N. C.

J. W. Kistler,
Rockingham, N. C.

H. C. Rucker,
Salisbury, N. C.

Issued by

DIVISION OF GAME AND INLAND FISHERIES
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

With Cooperation of

DEPARTMENT OF ZOOLOGY
NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
Raleigh, N. C.

VOL. II APRIL, 1938 No. 4

Note: Volume I, Nos. 1 and 2 have been designated as November, 1937, and December, 1937 respectively. Volume II, Nos. 1 and 2 have been designated as January, 1938, and February, 1938 respectively.

ROBINS ROOST IN MONTGOMERY COUNTY

For several weeks during February and March, robins had been coming to roost each evening in the dense pines about ten miles north of Troy in Montgomery County, where they settled for the night in groups on the lower branches of trees through an estimated area of some two thousand acres. It was with the hope of securing flash-light pictures of such concentrations at night, that a Field Biologist visited the area but his hope did not materialize. Before this roost had been reported, several individuals of the game hog breed entered the roost under the cover of darkness and beat the birds off of their perches with sticks. Due to this merciless destruction, the robins had resorted to safety high up in the pines where they could be seen from the ground only with difficulty, while others sought the shelter of dense thickets, so dense in fact that they were effectively concealed from view. In such positions they were safe from intruders including the photographer.

Robins roosting in thicket.

From a point of advantage in an open field, a small group of people had assembled to observe the robins coming to roost near the Uwharrie River. About five-thirty in the evening, an occasional small flock was seen but within an hour an almost steady flight of birds in somewhat open formation was flying overhead in the direction of the roost, a flight almost continuous until it

became so dark the birds could scarcely be seen. As one focussed his attention in the far distance small black dots pierced the horizon, dots which suddenly coming within the range of human vision took on the shape of birds on the wing. For nearly two hours this procession of robins, unerring in direction, continued. During the early evening, the birds were flying high but as the sun disappeared behind tall pines and darkness approached, they skirted the tree-tops, frequently flying so low through the open woods that their wing beats could be heard distinctly. To estimate the number of birds coming to roost in this area would be almost hopeless for they came from all directions by the thousands. Even a conservative estimate would probably run over several million.

Such a tremendous number of birds returning each night to the same restricted area quite naturally raises many questions. How far away do the robins go each day? How do they find their way back each night? What causes them to congregate? What do they eat at this time of the year? These and many more could be listed but few could be definitely answered, since our knowledge of even as common a bird as the robin is so incomplete. An examination of droppings found in the roost, indicate that these birds were feeding to some extent on dogwood and holly berries. Attention is here called to the fact that through a variety of berries and fruits form an important part of the food of robins, they are also insectivorous, feeding to a considerable extent, not only on adult insects but also on grubs and caterpillars which are injurious to crops. While they may do some damage, locally, where strawberries and cherries are grown, devices for scaring them away should be employed rather than shotgun and bird shot.

A number of robin roosts have been reported in the State during the past few years and each year special effort is made to protect these valuable songsters. Anyone learning of the presence of robin roosts would do the Department a great service by reporting their locations to the County Game Protector, for it is only with such cooperation that effective law enforcement will result. Federal Agent W. L. Birsch, of the U. S. Bureau of Biological Survey, stationed at Washington, N. C., has been receiving full cooperation from the Division of Game and Inland Fisheries in enforcing provisions of the Federal Migratory Bird Treaty Act, especially in connection with waterfowl and robin concentrations.

State and Federal men visit robin roost. Members of the group are, left to right: J. W. Kistler, Field Biologist; Max Capel, Montgomery County Game Protector; J. D. Findlay, District Game Protector; J. D. Chalk, Commissioner, Division of Game and Inland Fisheries; F. C. Ott, Game and Fish Specialist, Resettlement Administration; W. L. Birsch, Federal Agent, and Federal Judge F. Don Phillips.

On Saturday, February 12, County Protector Max Capel, assisted by the sheriff, a patrolman and several deputies, apprehended five men with 112 robins in their possession. They were bound over to the Federal Commissioner on five hundred dollar bonds, later convicted and fined seventy-five dollars each by Federal Judge J. J. Hayes. Two of the individuals failed to meet their fines and are now serving ninety days on the road. Shortly after this arrest District Game Protector J. D. Findlay and Special Protector T. M. Carter investigated a robin roost near Gastonia. Five men with a total of twenty-four birds in their possession were arrested and bound over to the Federal Commissioner on five hundred dollar bonds. With such encouraging cooperation, the protection of wildlife in North Carolina will be assured and the game laws properly enforced.

Recent reports indicate that many people apparently become unintentional law violators because they have not familiarized themselves with the game laws, especially those provisions concerning songbirds. According to the North Carolina game code, all wild birds are classified as game and non-game birds. Open and closed seasons are provided for game birds but it is unlawful to kill non-game or songbirds at any time with the exception of the following which are unprotected: English sparrows, great horned owls, Cooper's hawks, sharp-shinned hawks, crows, jays, blackbirds, and buzzards. Migratory song and insect-eating

birds such as robins, bluebirds, cedar waxwings, etc., are protected at all times by both State and Federal laws. Since most of these birds assist materially in decreasing insect pests, an effort should be made to conserve them. Boys who have not yet reached the age of discretion, should be taught the value of songbirds and instructed to protect them. In the rising generation of today lies our greatest hope for a better appreciation of wildlife in the future.

UNLAWFUL TO DISTURB WILD ANIMAL BABIES

The time of little fawns, baby squirrels, cub bears, newly hatched game and songbirds, and other babies of the wild, is here again, and the Department of Conservation and Development wishes to ask the help of all who receive this bulletin to inform our countrymen that it is strictly illegal to molest in any way, or capture these tiny creatures.

Many of the people who capture, or attempt to capture, these helpless babies, believe they are doing a kindness, since it appears that these little creatures have been abandoned. However, they have been left in hiding while the parents forage for food, and, like human babies, they sometimes disobey and begin wandering about. The parents will return and find their young and take care of them much better than would any human. Therefore, a real kindness would be to leave the wild youngsters alone.

If sportsmen and landowners will take an active part in discouraging this sort of thing, the wildlife of North Carolina will be better able to maintain and increase its numbers. The Division of Game and Inland Fisheries has no blood thirsty desire to arrest individuals for violating laws designed to save the young of wild animals and will do everything to properly inform the public concerning these laws. However, if such violations do occur, definite efforts will be made to apprehend the violators. With this in mind, the game law enforcement personnel in the State has been instructed to pay special attention to such activities.

The same applies to fish. Put the little fish back and let them grow into big ones. Wet hands before handling fish and release the little fellow under water, so as not to disturb the protected film of his body. If it is broken, the fish may die.

COLLEGE ACTIVITIES

QUAIL CROP EXAMINATIONS

Perhaps it will be of interest to note the following points which have been brought out in part through the examination of some 23 quail crops which were sent to the State College game management laboratory by Mr. Henry C. Kersey, manager of Mountain View Lodge in Randolph County, N. C.

It must be remembered that the contents of these crops are representative of foods eaten in this one limited locality, and of only one particular day in February. Without venturing into the realm of pure imagination, however, some very timely suggestions and reasonable assumptions may be noted.

Figure 1 gives in a tabulated form the contents of a more or less typical crop; although the volume of some of the crops examined was nearly double the amount contained in this one.

BOB-WHITE QUAIL—(*Colinus virginianus*) No. 42

Shot near Mt. View Lodge 2-6-38
Sophia, N. C., Randolph County —by Henry C. Kersey

Name of Food	No.	C. C.	%
Lespedeza striata (common lespedeza seeds)	271	0.9	19
Vigna sinensis (cowpea seeds)	15	3.4	73
Liquidambar styraciflua (sweet gum seeds)	12	0.1	2
Flaxinus pensylvanicum (green ash seeds)	2	0.1	2
Paspalum sp. (grass seeds)	10	0.1	2
Panicum sp. (witch grass seeds)	4	Trace	----
Rumex sp. (dock seeds)	1	Trace	----
Chamaecrista sp. (partidge pea seeds)	1	Trace	----
Unidentified seeds	3	Trace	----
Pulp and skin of unidentified fruits	----	0.1	2
(Examined by J. C. D., 3-17-38) Totals	319	4 7	100

Fig. 1.—Contents of one quail crop.

Considered as a group the 23 crops examined show that over 55% of the food consisted of lespedeza seed, mostly the common and Korean varieties, and that lespedeza occurred in 21 of the 23 crops. One stomach contained as many as 2,682 common lespedeza seeds. Cowpeas composed 20% of the contents of all

crops and 90% of the four crops in which they were found. Mast from various trees, such as sweet gum, oak, ash and holly were found in four stomachs and composed over 2% of all crop contents.

Of some interest is the presence in seven of the crops of the skins and pulp of unidentified fruits, the seed or stone of which evidently had been discarded. This material composed 68% of the contents of these crops and 19% of the total. Animal matter, such as beetles, grasshoppers, ants, etc., not usually present in quantity at this time of the year, was nevertheless found in two stomachs and composed nearly 2% of the total contents of all crops. Green vegetable matter in noticeable quantities was present in three crops, and composed over 1% of the content in all crops and consisted mainly of what appeared to be the leaves and small stems of some of the clovers and lespedeza. This is significant in view of the fact that poultrymen, as well as game farms, have found growing vegetation necessary to prevent nutritional roup and other serious ailments. In nature, complete lack of green foods are rare, but should be considered in any program to improve conditions for wildlife.

The remaining food, less than 1%, was composed of seeds from various grasses and weeds, such as oats, panic grasses, smartweeds, button weed, dock, etc. This is of little significance, except in its relation to the quantity of legumes (lespedezas, cowpeas, etc.) which were taken. Preference and availability of foods and other factors determine what foods are eaten, but the overwhelming proportion of legumes is undoubtedly due, in part at least, to the preference of quail for this type of food at this time of the year.

The large amount of lespedeza seed consumed is also of interest in view of the occasionally expressed opinion that lespedeza is responsible for the death of many young birds because of the fact that dense stands hold considerable amounts of dew and other forms of moisture which might drown the little chicks. It would seem from the above summaries that to find any quail, dead or alive, with a crop full of lespedeza seed, would be the most natural thing to expect, and while the above assumption may have some basis, the same charge might be brought against any dense type of ground vegetation, and would be an important consideration if more open areas which are so essential for young chicks were not present. It would seem illogical to consider removing this important group of food plant from the quail

range in order to prevent deaths of this nature when disking or similar operations in the early spring or late fall would reduce the density of vegetation and provide the open type of growth quail and certain other animals must have for successful nesting.

COOPERATORS' PAGE

ROTATION OF CROPS BENEFICIAL TO WILDLIFE

One very successful farmer in eastern North Carolina has stated that he has increased quail on his farm during the past ten years without decreasing the amount of hunting each fall. This particular farm is similar to many other farms in the eastern sections where corn and soybeans are the main crops.

The land is drained by numerous tap ditches leading to a few large drainage ditches or canals. A six foot strip of natural plant growth has been allowed to grow along one side of the drainage canals for the past ten years to provide food and escape cover for wildlife at all times. Every other cut of land between tap ditches is planted in corn and the in-between-cuts are planted in soybeans. The following year the corn cuts are planted in soybeans and *vice versa*. Also, these plantings have been arranged so that a cut of corn will be on one side of the main canals and right opposite the corn cut across the canals will be a soybean strip.

This system provides much better conditions for quail and other beneficial forms of wildlife than is provided where large fields are planted in one kind of crop. The different methods of cultivation and different crops encourage different kinds of insects and types of wild plants which provide a variety of foods which is essential for the well-being of wildlife. Also, the wild plants which grow along the ditches and canals provide late winter and early spring foods when most of the soybeans have decayed.

BEGINNING FROM SCRATCH

Another example of how quail respond to the provision of more suitable homes has been noted on the farm of Mr. Felton Brantley of Spring Hope, N. C. Mr. Brantley relates that when this farm was taken over some seven years ago, only one old cock quail could be found, no matter how much searching was done.

Having a keen interest in wildlife and being a good observer, Mr. Brantley planted a wildlife food patch on his farm near

where he had watched a covey of quail using his neighbor's farm. A covey in the same locality used this feed patch off and on during the following winter, and one pair of these birds nested and raised a covey on the Brantley farm the following summer.

Additional food and cover patches were planted nearer the center of the farm and another food patch planted on the opposite side of the farm attracted a second pair of nesting birds during the third summer of Mr. Brantley's management.

By continuing to plant food patches, and by leaving small corners of broomsedge and other nesting sites, these two coveys have been encouraged to restock the entire farm, in spite of the fact that the birds have been heavily hunted at times by outsiders.

Careful counting since the close of the last hunting season has shown that 35 quail now remain on the farm and should be able to restock the farm to capacity during the coming nesting season, and also pay back some of the birds which were borrowed—so to speak—from the surrounding farms in previous years.

Mr. Brantley has noticed another condition which might profitably be considered by others who are attempting to improve habitats for game. He states that during the past year, he has observed quail feeding on numerous occasions near the edges of a six-acre lespedeza field, most of which was not mowed, but that he has never been able to find them out in the middle of the field. If quail and other game animals are forced to feed long distances from suitable cover, they most certainly will become easier prey for their natural enemies. Several bushels of lespedeza seed may be scattered on the ground in a clean mowed field, yet such seed is frequently unusable, because of the lack of cover to protect the birds while they are feeding.

The value of quail as insect destroyers has been recognized by this farmer. He also likes to hear them and see them in the fields and woods. In other words, he gets many benefits from his quail and has started to manage the wildlife on his farm as he does his other crops.

SERVICES OF FIELD BIOLOGISTS AVAILABLE TO ALL

In previous issues of this publication, it has been repeatedly stressed that the services of the Field Biologists are available to all landowners who desire to practice wildlife management, and that a landowner does not necessarily have to sign one of the three types of agreements to cooperate with the Farm Game

Program. Several landowners throughout the State are following the recommendations of the Field Biologists and making wildlife improvements without signing agreements. Since the amount of land signed to agreements with the Farm Game Program probably will never exceed over five percent of the farm land of the State, this type of cooperation is earnestly sought by the Department.

Early during February, one of the Field Biologists contacted Mr. Clint Gray, Route 2, Kernersville, N. C., and after walking over his farm, recommended the planting of several food patches on locations which were well situated for this purpose. A recent visit to Mr. Gray's farm reveals that he has already planted several of these areas, and has the seed bed prepared for a total of ten patches. Mr. Gray's interest is mostly in the direction of increasing quail, and the improvements he is making should greatly improve his farm for these game birds, as well as make conditions more favorable for several other species. If Mr. Gray will continue his present program and will regulate the hunting on his property so as to leave sufficient breeding stock each year, he will be practicing sound wildlife management and will be doing his share to increase the wildlife resources of the State.

SOME BENEFICIAL INSECTS

BY
T. B. MITCHELL

Among the insects we find many of man's worst enemies, and since the effects of their activities are often conspicuous we become keenly aware of their existence. But the number of injurious insects is relatively very small compared to the total number of species or kinds that are to be found. Many kinds which are potentially injurious rarely become numerous enough to cause any damage. A vast number of other kinds have food habits which make them not only harmless, but actually beneficial; while still others have little or no direct influence on our well-being. These desirable insects, allies of man in his conquest of the forces of nature, are not nearly so well known to the average person as their more obnoxious brethren. The effects of their activities are less conspicuous or are not realized. We experience life as it is in their presence, not knowing the degree of our dependence upon them.

Of course there are some valuable insects well known to us all, such as the honey bee and silkworm that produce materials of value. The total value of all such insect products is not a modest figure, yet it would probably become insignificant in comparison with the value of some other less conspicuous activities. Space will not permit a discussion of all these valuable activities of insects, so I will limit my discussion to those insects that visit flowers and the beneficial effects of this habit to ourselves.

Honey bees are usually kept to obtain the honey which they produce. But in collecting the nectar of which the honey is made, the bees pass from flower to flower in the field or garden or orchard, and inadvertently transfer some of the grains of pollen from one flower to another. Thus the flower is pollinated, we say, and unless this happens no seed or fruit will develop. Some plants, it is true, do not require such insect activity. Many of the forest trees such as pines, oaks and maples, and certain of the crop plants such as corn and the small grains, are pollinated by the wind, but most of those plants that have conspicuous or scented flowers require this transfer of the pollen by insects. Thus if we are to gather an abundance of the fruit or seed for our own use, a plentiful supply of pollinating insects is an essential of equal rank with that of a good, well prepared and properly fertilized soil and a certain minimum of moisture. So it is evident that we are absolutely dependent upon these insects for all of our fruits such as apples, peaches, pears, plums, strawberries, blackberries, not forgetting such other types as watermelons, canteloupes, squashes and the like. Were it not for such insect activities no seed or fruit would be produced by such important crops as beans and cotton, and certain woodland trees such as red-bud and locust would be unable to propagate by seed.

Thus we might almost consider the honey which bees produce as a by-product. This would certainly be true were the honey bee the only insect having such habits. The honey bee, however, is only one representative of a large assemblage of bee species, most of which have somewhat similar flower-visiting habits. Of them all it is probable that the honey bee is the most valuable, since it has been domesticated and is therefore under the direct control of man. It differs from all of the other bees in this part of the world in being perenially social. Bumble bees, it is true, are also social, but their colonies last only a single season, new ones being started each spring by the young overwintering

queens. Thus bumble bees are not very numerous in the spring and are of slight importance as pollinizers of the spring flowering plants. Their workers become abundant by midsummer, however, and are very abundant during late summer and fall. Bumble bees have longer tongues than honey bees, enabling them to get the nectar from some flowers which other bees cannot reach. Thus red clover will not seed unless bumble bees or others having tongues of sufficient length to work the clover are plentiful.

A large carpenter bee common in this region is very similar in appearance to the bumble bees. Its habits are quite different, however, for it makes tunnels in wood in which the eggs are laid, the supplies of pollen and nectar stored and the young reared. They are not social, hence there are no workers, only the males and females. They are abundant in the spring on such flowers as red-bud, locust and wisteria.

Of special importance to our fruit crops are the ground bees that are among the first to appear in the spring. There is a large number of species, most of them rather small in size and rather dull as to coloring. According to the findings in some other parts of the country, certain of these ground bees are much more effective than the honey bee in the pollination of apple. They are abundant on such flowers as apple, pear, willow, wild plum, and numerous others that are in bloom during the spring.

Later in the spring and in summer numerous other kinds of bees appear. Some ground nesting types are large handsome insects, rivalling the bumble bees in both size and coloration. They are all solitary, and they become especially numerous in the fall when they can be observed on asters, golden rod and other fall flowers.

Among the most interesting of the bees are those that construct peculiar nests of various sorts. Some construct masonry nests of soil particles glued together. Others make their cells of resin or line the cells with plant hairs. The leaf-cutters line their nests with pieces of leaves cut from plants, and they occasionally do some damage because of this habit. However, the good that they do probably far outweighs the slight amount of damage for which they are responsible. They are especially important pollinizers of leguminous crops such as garden and field beans, alfalfa, clover, etc.

In all, there are about 400 different kinds of bees in the State of North Carolina, probably over 2,000 in the United States. In

any normal situation the number of individuals is probably adequate to the needs of the native flora, but where large acreages are under cultivation, with little uncultivated land available for the nesting of native bees, it is conceivable that a reduction in crop yield might result. Some orchardists keep colonies of honey bees to guard against such a contingency.

It is well to keep in mind that an abundance of these helpful insects is dependent upon the availability of nesting sites. Bees are so diverse, however, as to the locations which they select for their nests, that little is to be feared along this line. Woodland, uncultivated roadsides, ditch banks, and what not, all afford opportunities for numerous kinds of bees to build their nests; and unless an area is too thoroughly cultivated, or unless fire is too frequent, our crops should not suffer for lack of pollinating insects. Thus we have another argument for conservation. We live in a wondrously complex environment, which we might compare to an extremely intricate and delicate machine. Just as it is unsafe for a novice to tinker with such a machine, so is it hazardous for us to meddle with our environment. The safest plan is to maintain as much of it in as nearly a natural condition as possible and thus avoid unforeseen consequences.

GAME BIRD NEST STUDY

In order that additional information might be secured relative to the life histories and habits of some of the important game birds, it has been suggested that some of the farm game cooperators and other careful observers who might desire to do so, keep a record of game bird nests found by them. It is realized that considerable harm might be done in connection with this activity, and therefore it is not recommended on a large scale, and by no means should be indulged in by any except the most careful observers because undue disturbances about nests frequently cause the old birds to abandon their nests or young.

Information relative to the nesting habits of wild turkeys, mourning doves, ruffed grouse, and quail, will be most welcome. Where convenient, it will be appreciated if the district Field Biologists are notified as soon as nests are found. The chart on the following page may be used for recording information for each nest found.

The chart might give the impression that the nests found should be visited more than once. However, if there is danger of bothering the incubating bird, it is suggested that the nest be left alone.

GAME BIRD NEST STUDY

Name of Bird	*Date Nest Found*	*Approximate Date of Hatching*	*Number of Eggs Hatched*	*Number of Eggs Not Hatched*	*Remarks*

MAY. 1938

North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA DEPARTMENT OF CONSERVATION AND DEVELOPMENT

R. BRUCE ETHERIDGE
Director

DIVISION OF GAME AND INLAND FISHERIES
J. D. CHALK
Commissioner

E. B. KUGLER
Assistant to Commissioner

ROSS O. STEVENS, *Biologist and Associate Prof. of Zoology, N. C. State College*

DISTRICT GAME PROTECTORS

J. A. BRADSHAW,
Asheville, N. C.

J. D. FINDLAY,
Charlotte, N. C.

H. GRADY FARTHING,
Boone, N. C.

FRED D. WILLIAMS,
Fayetteville, N. C.

L. E. WARRINGTON,
New Bern, N. C.

RUPERT E. WEST,
Moyock, N. C.

E. P. KEEN,
Raleigh, N. C.

WILDLIFE MANAGEMENT SECTION

R. B. ARMFIELD,
Supervising Biologist
Raleigh, N. C.

FIELD BIOLOGISTS

J. C. OAKES,
Williamston, N. C.

BEN JAMES,
Kinston, N. C.

ROY KOMAREK,
Raleigh, N. C.

J. W. KISTLER,
Rockingham, N. C.

H. C. RUCKER,
Salisbury, N. C.

ISSUED BY
DIVISION OF GAME AND INLAND FISHERIES
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
WITH COOPERATION OF
DEPARTMENT OF ZOOLOGY
NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
RALEIGH, N. C.

VOL. II | MAY, 1938 | No. 5

PERMISSION TO REPRINT MAY BE OBTAINED PROVIDED PROPER CREDIT IS GIVEN.

AN EXPERIMENT IN MUSKRAT FARMING

In 1913, Mr. Walter A. Gibbs, who formerly owned and operated the Gibbs Trap Company, undertook an experiment in muskrat farming in Dorchester County, Maryland. At the beginning this 500 acre experimental area in Maryland was used as a testing laboratory in developing better and more humane traps. A product of these experiments, is the two-trigger trap, which kills the trapped animal almost instantly, stopping suffering and reducing losses to a minimum. A trap used to catch muskrats alive for breeding and other experimental purposes was also developed by Mr. Gibbs, and through its development, the conservation of muskrats everywhere was encouraged. Muskrats have been trapped alive with it and shipped to many distant places for breeding purposes, some of them as far away as Czechoslovakia.

In connection with the work in developing better traps on the Maryland marshes, it became evident to Mr. Gibbs that through proper management, there was a possibility of making certain marshlands pay dividends. It has been demonstrated, that the 500-acre tract of swampland in Maryland, would yield an average catch of 3,000 muskrats each year. This is an average of six muskrats per acre for the entire 500 acres of marshland. Good, prime, black, muskrat hides frequently average two dollars each, which would make the average gross income ten dollars per acre. This is a very good return when the low valuation of the land and other production expenses are considered.

Working on the theory that with more land and more breeding animals, more skins could be produced for fur coats, Mr. Gibbs purchased 3,000 acres of marshland in Currituck County about two years ago and proceeded to stock it with 700 mated pairs of black muskrats which had been trapped alive in Maryland and transported by truck to the marshes in North Carolina. That these newcomers have adjusted themselves to their new home and settled down to the serious business of producing skins for Hudson seal coats can easily be seen by glancing over haphazard houses and burrows amid reeds and marshgrass where the black muskrats have their winter homes.

Starting near open water and extending through the marsh, ditches thirty-six inches deep and twenty-four inches wide, have been cut throughout the entire marsh at intervals of approximately 500 yards. The dirt which was removed from these

ditches was dropped in piles along the banks. Careful examination of these piles shows that many of them have been burrowed into by muskrats. These ditches increase the bank surface of the marsh and, therefore, make it more desirable for the rats because they can find more places to make their burrows close to water. They also make water available in all of the feeding areas at all seasons of the year, thus preventing forced migration out of certain normally good feeding areas when the general water level of the marsh has been lowered by continued dry weather.

The transported breeding rats were systematically released throughout the marsh in little hillocks prepared for them by cutting down the reeds and sedge and arranging them somewhat after the manner in which muskrats build their own houses.

FIGURE 1.—Where proper environmental conditions are provided, muskrats will build their characteristic dome-shaped houses of marsh vegetation and reproduce successfully.

They occupied these man-made houses until they could build burrows and houses for themselves nearby. In many cases several houses and burrows can be seen near where a pair of rats were released almost two years ago. Muskrats resemble other rats in that they breed often and produce large litters of young.

These and other desirable qualities have caused Mr. Gibbs to invest something like $25,000 in 3,000 acres of marshland, equip-

ment, live traps, boats, salaries for two guards to patrol the marshes continuously and other expenses in connection with the operation of this very unusual farm. Mr. H. C. Hoffman, supervisor of the farm, who has been associated with Mr. Gibbs for more than fifteen years, says that after the winter of 1939-40 he expects to trap 15,000 muskrats out of this marsh annually. Trying to make a conservative estimate of the number of rats which now swim in the 25 miles of ditches that have been cut on the 3,000-acre marsh, Mr. Hoffman believes there are at least 3,000 and probably more. By 1940, he expects to have the entire marsh producing an average of five rats per acre, and to keep this average up year after year.

The community and the State will benefit by this venture. It should be pointed out, however, that marshlands which might appear to the casual observer as good muskrat producing areas, may have little or no value for this purpose, and before widespread recommendations can be made in this regard, it will be necessary to make a detailed study of the soil, water, and animal and plant life involved.

COLLEGE ACTIVITIES

EXPERIMENTAL FORCE FEEDING OF QUAIL

In the March, 1938, issue of WILDLIFE MANAGEMENT IN NORTH CAROLINA, a short article mentions that experiments would be started to determine the value of some of the different kinds of seeds which have been reported as not being eaten by quail and certain other wild animals.

The common coffee weed (*Cassia tora*—L.) is one plant which is frequently discussed in this connection. Because of the sickle-shaped pods, the plant is frequently called sickle-pod. (See picture, Fig. 2.) Partridge pea is another common name, although this name is more appropriately applied to two short podded members of the Senna family, the small, flat, black seeds of which are readily eaten by quail.

Since it has been reported that coffee weed seeds act as a poison when eaten by quail, and since several hunters have claimed to have found these seeds in quantity in quail stomachs, it seems desirable to present the small amount of information which has been collected.

The first bit of information was obtained early last fall, when a small box containing varying amounts of several kinds of seeds including coffee weed seeds, partridge pea, wild trailing beans, sumac seeds, millet seeds, and others was placed in a small enclosure containing four bobwhite quail. After several days, the quail had eaten practically all of the seeds except the coffee weed seeds. On several other occasions, seeds of this plant were made available to quail in three different pens, and as far as could be determined, only a very few or none of the seeds were eaten on any occasion. These same pen-raised birds did, however, eat freely of the seeds and fruits of such plants as pokeberry, sumac, partridge peas, finger millet, hemp, wild vetch and other seeds to which they had not been accustomed previously.

Since the birds would not eat the seeds of coffee weed voluntarily, it was decided to force feed them, and the results were as follows: On March 9, 1938, a quail (*Colinus virginianus*) was given 30 coffee weed seeds, and no ill effects were noted during the several days the bird was under observation.

A second bird was given approximately 155 coffee weed seeds (5 c. c.) on the evening of March 10. While the bird did not die from this dose, a severe case of diarrhea was noticeable during the following two days, making it appear that the seeds did have a toxic effect. An examination of the droppings of the quail revealed that at least four of the coffee weed seeds had passed through the bird unaffected. A regular feed mixture and water were available to this bird during the time it was held under observation, and after three days, it was returned to the holding pens apparently in normal condition.

About noon on April 15, 1938, a third bird was force fed approximately 185 (6 c. c.) seeds of coffee weed and held in a small cage for observation. During late afternoon a slight case of diarrhea developed. On the following morning (April 16) the bird appeared normal except for slight evidence of diarrhea, and was given an additional dose of approximately 155 (5 c. c.) of the same kind of seeds. An examination of the droppings indicated that large numbers of the seeds were passing through the bird unaltered. On the morning of April 17, the bird showed slight signs of diarrhea, but was normal in appearance otherwise. The droppings continued to be full of undigested seeds, although there was more evidence that some of the seeds were being digested.

From these experiments it would seem reasonable to assume that while coffee weed seeds may be toxic or poisonous to quail, there is not much danger that quail will eat enough of these under natural conditions to do them any great amount of harm.

ONE IMPORTANT POINT about this matter should be noted. Occasionally, while discussing food and cover developments with farmers and sportsmen, the Field Biologists of the Division of Game and Inland Fisheries are shown a field which has a good stand of coffee weed plants and are asked why additional efforts should be made to provide more food. Many people think that the seeds of this and certain other plants are eaten extensively by quail, consequently, it becomes more difficult to explain the necessity of providing an abundance and variety of foods well scattered over each of the farms which have been planned and are being developed under the Farm Game Program.

FIGURE 2.—A dense stand of coffee weed or sickle-pod (*Cassia tora*). All evidence indicates that quail do not eat the seeds produced by this plant.

Occasionally, a report comes in that a hunter has taken a quail with a crop full of the above mentioned seeds, but no crop of this nature has been sent to the game management laboratory as yet, although if such records are secured in the future, they will be noted in this pamphlet. Of 1,704 crops examined during the Cooperative Quail Investigation carried on in the Southeast, only six contained coffee weed seeds, and the largest number in any one crop was four.

ENGLISH SPARROWS REGURGITATE COFFEE WEED SEEDS

In order to save the captive quail, it was decided to experimentally feed the coffee weed seeds to English sparrows. On February 7, 1938, one of these birds was force fed six seeds, the second was given twelve and a third was given eighteen. On the following morning, it was very surprising to find that a total of twenty-six of the thirty-six seeds had been coughed up and the sparrows were as active as ever. Through an error, they were released before the experiment was completed.

On April 14, a female English sparrow was force fed thirty of the same lot of seeds about 9:30 P.M. At 10:00 A.M. on the following morning twenty-two of the seeds had been regurgitated. During the afternoon, diarrhea became very pronounced, and later on that evening the bird appeared very droopy and weak. At 8:00 o'clock the next morning (April 16) the bird was found dead, apparently having died several hours previously.

An examination revealed that the crop of the bird was empty, although the gizzard contained a small amount of chicken laying mash and one normal appearing coffee weed seed.

It would appear from the above incident that the severe diarrhea had caused the sparrow to become weakened and perhaps was the cause of death. It is quite probable that the few coffee weed seeds which were digested caused the diarrhea. It appeared that two of the seeds had passed through the bird without being affected. A total of twenty-five of the thirty seeds were recovered.

RATS AND COFFEE WEED SEEDS

Efforts were made to determine the effect of coffee weed seeds when eaten by tame rats and by cotton or field rats (*Sigmodon hispidus*). Half a cup of seeds placed in a cage of tame white rats which had not been fed for more than a day did not receive more than a sniff or two from the rats, although under similar conditions, the rats were found to eat sumac seeds, pokeberry seeds and other foods to which the rats had not been accustomed.

After leaving the container with coffee weed seeds in the rat cage several hours without succeeding in having the rats eat the seeds, a quantity of laying mash, the usual feed for the rats, was poured over the seeds. This only induced the rats to pick up the coffee weed seeds one by one, eat the bran particles which adhered to the seeds and then cast the seeds aside.

Likwise, several trials with cotton rats failed to induce any of these animals to eat the hard seeds of this common plant, although they readily consumed comparatively large amounts of sumac and pokeberry seeds, and many other wild and cultivated seeds. They would not eat mature seeds of three kinds of crotalaria which were offered to them (*C. spectabilis, C. lanceolata,* and *C. intermedia*). The rats did eat freely of Wood's Clover seed, which is apparently a variety of crotalaria.

A cupful of the coffee weed seeds was placed in water and at the end of ten days of soaking more than 90 percent of the seeds appeared practically normal in size and shape. Only a few of the seeds had become softened and swollen. A few hours after the softened seeds were placed in the cage with the cotton rats, these little rodents had cut open and discarded the outer rubbery portion of the seeds and had eaten the small cotyledons.

It is apparent that the extreme hardness of the newly ripened seeds accounts, in part at least, for the failure of the rats to eat them. This same point may also be true with regard to the quail.

COOPERATORS' PAGE

FARMERS' REPORTS SHOW VALUE OF WILDLIFE

An interesting observation concerning the effectiveness of quail in controlling farm pests was reported last week by Mr. D. A. Monroe, of Biscoe, North Carolina. In growing garden string beans, Mr. Monroe said that it was necessary for him to spray continuously in order to destroy insect pests if he harvested any beans from his garden plot. A few years ago, this job of controlling insect pests was done for him by a covey of quail. Quoting Mr. Monroe: "I watched these birds enter the bean patch from a covert near by, and at first I was at a loss to know what they were feeding on. They would peck around and then jump into the foliage. I moved closer to the feeding birds and saw that they were eating the bean leaf beetle. No spraying was needed that year, and this incident was evidence enough for me as to the benefit to be derived from having birds of all kinds on my farm."

Mr. T. H. Williams reports that he observed a covey of quail ranging in a peanut patch which was planted adjacent to his potatoes. Thinking that the birds would ruin his peanuts about

the time they were breaking through the ground, he proceeded with gun in hand to remedy the situation. After killing two birds, he decided to open their crops merely through curiosity to see how many peanuts they had eaten. To his surprise, he found that one of them had eaten 132 potato bugs and the other had eaten so many more that he did not take time to count them. Neither of the birds had any trace of peanuts in his crop.

Mr. C. H. Trash of Wilmington states that last year he had forty acres in garden peas where, unfortunately, plant lice were about to clean him out when blackbirds came in great flocks and within ten days they had completely cleaned the fields of the destructive pests.

A farmer near Pollocksville reports that he had ten acres of tobacco located at some distance from the house where it was surrounded by woodland. Since he found it inconvenient to carry the tenants so far to "worm" it, he spent his spare time in making the tobacco crop near home good enough to take care of the damage expected in the field farther away. He received a pleasant surprise, when he found less damage from worms in the field away from his house than in the one nearby. He says crows were responsible for the reduction in insects and adds, "They lived in that tobacco field and kept it absolutely cleaned of worms. I don't want anybody killing crows on my place."

A satisfactory method of preventing crows from pulling up corn is suggested by Mr. A. B. Phillips. He scatters a few pecks of corn over the entire field after planting is finished and thereby entices the crows to "come and get it" without the usual "corn pulling" activities. He finds that crows well pay for their rations by keeping worms down and by allowing a better stand to develop. Mr. Phillips states, "I never have to replant my corn, and I believe that scattering the corn is the reason for it."

THE "BLUE DARTERS"

The Cooper's and sharp-shinned hawks, commonly called "blue darters", are fairly numerous in North Carolina and because of their more or less destructive habits, the entire hawk family has suffered widespread unfavorable publicity, not to mention wholly unjustified persecution. It is hoped that farmers and sportsmen will make an effort to distinguish between the harmful and beneficial species and limit their activities to individuals possessing destructive habits.

The general structure and color of the Cooper's and sharp-shinned hawks are essentially similar, except that the latter is somewhat smaller and has a notched tail. With some slight variation in sizes, the sexes of both species are alike. The upper parts of the adult birds are dark bluish and the underparts whitish, crossbarred with reddish brown. In flight they are easily distinguished by their rapid wing beat and their comparatively long tails. Very seldom are the "blue darters" seen to soar as is so characteristic of the larger red-shouldered and marsh hawks. Also, both are capable of flying much faster than the

FIGURE 3.—Cooper's Hawk.

larger species which probably explains their ability to capture other birds so readily.

Because no food habit studies of the "blue darters" have been made in North Carolina, the exact economic status of the birds in the State is still undetermined. However, both are known to be confirmed bird-eaters and it is probable that some damage to

poultry and game bird populations do occur from their activities in some localities. Undoubtedly, due to its larger size, the Cooper's hawk is capable of being the most destructive of the two.

In order that the policy of the Division of Game and Inland Fisheries regarding the control of predatory animals will be definitely understood, we desire to emphasize that it strongly opposes the widespread reduction in numbers of any native species of wildlife which may at times prey on game or song birds. The Division has no objection, however, to the sane and reasonable control of Cooper's and sharp-shinned hawks. Where depredations on poultry and quail by these hawks are known to occur, their numbers should be reduced and since their shy nature makes control extremely difficult, the shotgun seems to be the only effective method of reduction. Unlike the larger soaring hawks, the "blue darters" usually perch under the protective cover of woodlands, consequently, pole traps more often catch beneficial species of birdlife which are in the habit of perching in the open.

PLEASE KEEP THESE PAMPHLETS

It is hoped that farmers, sportsmen, and others who receive this little pamphlet regularly, will keep all issues in a handy and safe place for future reference. In many cases the information contained herein will be a report of the progress of wildlife conservation affairs in this State. Then too, it is planned to continue the discussion of beneficial and harmful hawks and owls and other wild animals from time to time and if the pamphlets are kept handy, they might help in developing a better understanding of the wildlife present in your community.

If it is thought not desirable or convenient to keep these pamphlets, may we suggest that they be given to a local school library or a friend for safe keeping. Cost prevents the printing of a large number and, therefore, it is desirable to make the very best use of all copies that are available.

CHANGE OF TITLE

No doubt the readers of this pamphlet have noticed that its title was changed in the April issue from "Wildlife Management in North Carolina" to "North Carolina Wildlife Conservation." This change was made with the idea of making it possible to

include all matters pertaining to the conservation of all wild animal and plant life. It is hoped that this modest pamphlet may grow and gradually develop into a publication through which the sportsmen and landowners of North Carolina may become acquainted with the activities of the Division of Game and Inland Fisheries, wildlife clubs and other organizations and groups interested in wildlife conservation. Problems concerning wildlife management and its administration, law enforcement, fisheries developments and conservation education will be openly discussed and articles concerned with the activities of the National Park Service, U. S. Forest Service and U. S. Biological Survey will be presented at such times as material is available. In general, "North Carolina Wildlife Conservation" is issued to stimulate an interest in conserving and intelligently administering our wildlife resources and to promote more effective cooperation between the landowners, sportsmen and the Division of Game and Inland Fisheries.

THE STRAY DOG PROBLEM

As the breeding season for quail, rabbits and other forms of wildlife is now at hand, it will be well to consider a problem recognized by most everyone as having considerable bearing on our supply of wildlife—the stray dog problem. Dogs that are left to run at will during the late spring and summer months no doubt destroy many quail nests, young birds and rabbits. In addition to actual destruction of eggs and young, incubating birds may be disturbed resulting in desertion of their nests. Since this widespread disturbance continues throughout the summer, many birds are unsuccessful in their industrious attempts to bring off a brood of chicks. Even if a quail hen escapes these marauders long enough to hatch a brood, her troubles are not over since young birds are easily caught. Should they all be killed in this way another covey is gone that would have afforded someone good shooting.

It is interesting to note that during a study of the habits of bobwhite quail undertaken by the Cooperative Quail Study Association in Georgia, it was found that of hundreds of nests under observation only thirty-six percent hatched successfully and many of these unsuccessful nesting attempts were traced to stray dogs. These studies of quail nests were carried out on preserves and plantations where tenants were not allowed to have a dog on

the premises. The losses by dogs in these cases were, no doubt, caused by strays belonging to no one. It is easy to see how alarming this situation could become on lands where each tenant for every forty or fifty acres of land has from one to three hounds or mixed breed dogs hunting at large every month in the year. The part bird dog is one of the greatest enemies of young quail. In addition to a dog's natural instinct to hunt, add the fact that bird dogs are trained to hunt and if left to roam the fields and woods during the summer many young birds will be pointed and killed. It will be to the advantage of those interested in preserving and increasing our native quail to see that all dogs are kept penned from April 15 to September 15. Better still would be the plan to discourage tenants from keeping excess dogs on the premises.

THE COVER

Pictured on the cover of this issue of "North Carolina Wildlife Conservation" is a photograph of the flower of the common blackberry, an important summer wildlife food plant. Quail in particular, require a certain amount of moisture a large part of which is derived from berries, fruits, and succulent vegetation. Consequently, during hot, dry periods such foods are of great importance and berry producing plants should be encouraged wherever possible. Contrary to a widespread belief, open water such as streams or ponds are not necessary to successfully maintain these game birds in numbers. This moisture requirement is obtained in the form of dew or from such foods as insects, fruits, berries and succulent vegetation. In fact, the bobwhite quail has been recorded as occupying very common on islands surrounded by salt water where fresh water could be obtained only from these sources.

ATTENTION! SPORTSMEN

The following announcement of two important meetings to be held in joint session should be of interest to all sportsmen and wildlife enthusiasts. The Thirty-second Annual Convention of the International Association of Game, Fish and Conservation Commissioners and the Sixty-eighth Annual Convention of the American Fisheries Society have been scheduled to meet in Asheville, North Carolina, the week of June 20-24, with headquarters at the Battery Park Hotel. Representatives from state conservation departments throughout the Union and officials of wildlife agencies of the United States, Canadian and Mexican governments will convene for the purpose of discussing fish and game problems and the latest developments in the field of wildlife conservation. Many interesting topics concerning the management of one of our most valuable natural resources will be presented by speakers well versed in the administration of fish, forests and game.

JUNE 1938

North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA WILDLIFE CONSERVATION

N. C. DEPARTMENT OF CONSERVATION AND DEVELOPMENT
R. BRUCE ETHERIDGE, DIRECTOR

DIVISION OF GAME AND INLAND FISHERIES
JOHN D. CHALK, COMMISSIONER

PUBLISHED MONTHLY BY THE DIVISION OF GAME AND INLAND FISHERIES WITH THE COOPERATION OF THE ZOOLOGY DEPARTMENT, NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, RALEIGH, N. C.
PERMISSION TO REPRINT MAY BE OBTAINED PROVIDED PROPER CREDIT IS GIVEN.

VOLUME II, JUNE, 1938 NUMBER 6

WILDLIFE PROTECTION

One of the basic principles underlying any program which has as its ultimate objective the preservation and increase of game and other forms of wildlife is the enforcement of laws designed to assure that objective. While the wisdom of protecting wildlife is seldom questioned, history has indicated that satisfactory wildlife protection can come about only through years of constant improvement in methods employed in bringing about better protection, and through improvement in sentiment on the part of the public.

Almost every day the Division of Game and Inland Fisheries encounters problems which when thoroughly understood and properly regarded by all people will mean forward steps in the wildlife conservation program of this State.

Recently an incident occurred which illustrates these points, and while the facts, without mentioning names or localities, are here presented such is not being done with the thought of criticism.

During the early part of May, a bear escaped from its enclosure in a small North Carolina city where it had been held in captivity without a permit. After wandering about, it was reported in the vicinity of another city some twelve miles away on May 10. Somewhere along the line a story sprang forth

which indicated that the bear was killing livestock and molesting and endangering people. When this report reached the officials of the city in which the bear chose to visit on May 10, the mayor in good faith, issued orders to kill the bear. Not being able to find the bear on May 10, the hunt was continued and on May 11, the bear was finally killed. On May 13, the carcass of the bear was being barbecued by the police and fire departments of this city in contemplation of a feast on the night of May 13.

The North Carolina Game Law specifically states (Sec. 17) that game legally taken may be possessed during the open season

"Stay with him, Paw—Grampaw's gone to town fer a huntin' license!"

—REAMER KELLER.

Reprinted through the courtesy of the Cartoonist, Reamer Keller, and the American Magazine.

therefor and the first ten days next succeeding the close of such open season, and gives *only* to the Commissioner of the Division of Game and Inland Fisheries the right to issue permits to accredited persons to keep wild animals in captivity (Sec. 8(a).)

There are many good reasons for having the taking and holding of wild animals supervised by the Division of Game and Inland Fisheries. In the first place, it is dangerous to have bear,

deer or other potentially harmful animals insecurely caged in the vicinity of public places. The above case very clearly brings out this point.

In the second place, wildlife is the property of all the people of the State and without regulations many unqualified persons would pick up the young of all kinds of game during closed seasons with purely selfish intentions. Game may be taken, however, during open seasons and held in captivity, provided, application is made promptly to the Division and upon investigation the applicant is found equipped to properly and humanely care for such animals in confinement. This attempts to discourage the use of wild animals as roadside exhibitions, etc., where consideration of sanitation conditions in holding pens is so frequently disregarded. It is with the idea of eliminating or improving these undesirable conditions that the law enforcement unit of the Division of Game and Inland Fisheries is anxious to get the earnest cooperation of all concerned in making this regulation more effective. More game left in the wilds will mean more game where more people can enjoy it under natural conditions.

The mayor desired, as most anyone would, to have the bear killed as soon as possible since it was within the city limits where it might have become harmful at any moment. The regulations (Sec. 4 C) provide that birds and animals committing depredations may be taken at any time without a permit while committing or about to commit such depredations. Therefore, the mayor was within his rights in giving this first order. However, the same part of Sec. 4 of the North Carolina Game Law states: "The Board shall have power to issue permits to kill any species of birds or animals which may become seriously injurious to agriculture or other interests in any particular community." This authority is delegated to the Commissioner, Division of Game and Inland Fisheries, and in turn the Commissioner is represented in each county, as far as game and fish laws are concerned, by the County Game Protector.

Since the bear could not be located immediately on May 10 the lawful procedure would have been to notify the County Game Protector, who could have handled the bear as the law permits. Especially should this have been the case since an investigation revealed that the bear had not disturbed or killed any livestock, and as far as could be determined the bear had not attempted to molest any person. Since the bear was semi-tame, probably the County Game Protector could have captured it alive and re-

turned it to its native haunts where it could help to reproduce its kind.

The personnel of the police and fire departments chose to barbecue the bear for themselves which was definitely against Section 8 (a) of the Game Law, which instructs the Commissioner to direct disposal of edible parts of game by gift to hospitals, charitable institutions, etc.

The investigation of incidents of this nature by State Game Protectors is one of their numerous duties, their intentions being simply to determine if such acts are justifiable and to record the facts of the case. Such records are of real importance in efficiently administering game and fish laws, for frequently law violators attempt to justify illegal activities by stating that the game in question was destroying property, and by stating that certain individuals or groups did so and so and were not convicted and, therefore, why should we be bothered. When such alibis are offered, it is very helpful if the officers can refer to definite records and produce the facts concerning any case.

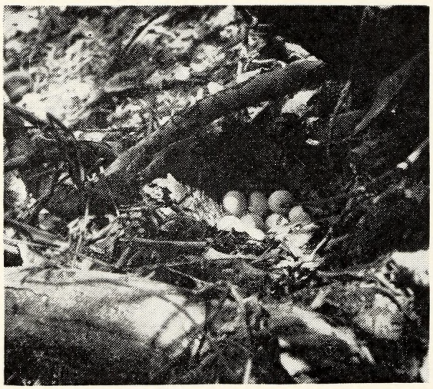
While it may be true that incidents similar to the one presented here have been too frequent in the past, it is very evident from the increasing cooperation on the part of sportsmen, landowners, magistrates, and the public in general, that the majority are highly in favor of improved game protection. Gradually the law enforcement unit is taking progressive forward steps with the idea of more adequately performing the duties which have been delegated to it. In pursuance of this course, two men have recently returned to the Division after eight months of intensive training at Pennsylvania's School for Game Wardens.

THE "PHEASANT" OF THE MOUNTAINS

Whether he be fisherman, hiker or hunter, the resonant drumming of the ruffed grouse becomes familiar to all whose inclinations take them into the mountain forests of the Appalachians. Here the "pheasant" of the mountaineer in bold defiance mounts a fallen log and beats out a challenge to his rivals, or is he sending forth a love call in search of a mate. While opinions differ on this point, a well known authority on grouse, after extended observation, concludes, "that the drum is probably a challenge to other males even more than an announcement of his presence to the female."

Many explanations have been recorded as to how the ruffed grouse makes the drumming sound which can be heard a mile or more. However, by means of motion pictures it has been shown that the sound is produced by the bird flapping its wings, the drumming noise resulting from the "forward and upward" wing beats against the air, and not from the wings striking the body as had been formerly believed. The drumming performance is confined almost exclusively to the male bird and though it is associated primarily with spring, the "booming" of the grouse is frequently heard during the autumn months.

The nest of the ruffed grouse, usually containing from nine to twelve eggs, is most always located on the ground, frequently at the base of a tree or bush where there is good cover. Here for a period of 21 to 28 days, the female alone patiently incubates her eggs and raises but one brood a season. When so occupied it is not unusual to approach within a few feet of her before she flushes, for she seemingly relies on her color, which blends with the surroundings, for protection.



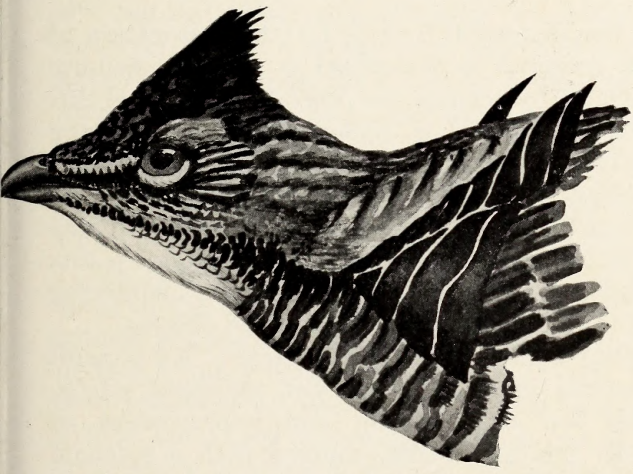
Nest of ruffed grouse containing ten eggs, photographed near Linville, N. C.

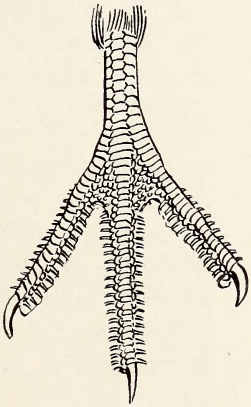
Soon after the young are hatched they leave the nest and quickly learn to scratch for food under the watchful eye of their mother. When half grown they are able to fly. Like the young of wild turkeys, grouse chicks are very sensitive to dampness and no doubt many of them perish from exposure if they are forced into hiding in wet vegetation when disturbed. Wood ticks, which become attached to the tender skin of the neck and back frequently cause the death of very young chicks presenting a problem difficult to solve.

The female ruffed grouse is known for her devotion to her young and will often risk her life to protect them. In his "Life Histories of Gallinaceous Birds," A. C. Bent cites an amusing incident. "Edwyn Sandys (1904) had an interesting experience with a pointer pup, which was attacked by a hen grouse, the guardian of a brood about as large as quail. He describes the incident as follows: 'A sudden tremendous uproar attracted my

attention, and, to my astonishment, I saw an old hen grouse vigorously belaboring the bewildered pup with her wings and giving him a piece of her mind in a torrent of cackling, such as I had never dreamed a grouse capable of uttering. The poor pup, after first trying to make a point, and then to grab her, finally bolted in dismay. She followed him for about a dozen yards, beating him about the rump with her wings, which kept up a thunderous whirring. She acted exactly like a wrathful old fowl, and the pup like a condemned fool'."

The food of the ruffed grouse, which is typically a woodland bird, consists chiefly of vegetable matter such as nuts, seeds, buds, blossoms, fruit and berries. This amounts to about 90 percent of its diet, while the remaining approximate 10 percent is insects.





The head and foot of the ruffed grouse. In summer the feet are naked but in winter a "fringe" develops on the toes which serves as "snowshoes."

Perhaps the most important problem associated with the management of grouse is the study of the periodic fluctuations in its numbers. Sportsmen, who favor the hunting of this woodland bird, probably have noticed that after enjoying fairly good, to good shooting, they will strike a season when but few birds can be found. This subject, known as the grouse cycle, has received considerable attention from specialists of the U. S. Biological Survey who working in collaboration with Minnesota investigators and others have undertaken a thorough investigation of the problem. While this research work has been done in the northern range of the grouse, populations in North Carolina probably behave in a similar manner.

It was found that the numbers of grouse gradually increased from a low point through a period of about ten years and then rather suddenly they became scarce. Though the exact cause of such radical changes in population is still imperfectly known, disease probably plays an important part. In consideration of such problems as this, the wisdom of the game regulation investing in the Board of the Department of Conservation and Development the power to regulate seasons, becomes evident. If legislative action had to be obtained such crises could not be acted upon promptly.

SURVEY SHOWS WATERFOWL INCREASE

"The progress of the Biological Survey for the restoration of the nation's natural resource in waterfowl is showing definite results," states a bulletin concerning the 1937-38 Waterfowl Situation, recently released by the U. S. Biological Survey. During the past year an extensive survey of the waterfowl conditions throughout the continent was conducted by this Bureau with an estimate of 2,000 qualified observers participating. Utilizing every means of travel, observations were made at strategic points along migration routes, in breeding ranges and wintering grounds throughout the United States, Canada and Mexico.

The concluding paragraphs of the bulletin state: "As a result of restrictive regulations upon the legal kill, increased educational efforts, better law enforcement, and improvement of habitat both naturally and artificially, coupled with a splendid spirit of cooperation upon the part of the great majority of the duck hunters of the country, the migratory waterfowl have made satisfactory gains in their numerical status in the 12-month period under consideration.

"Although a gratifying increase is indicated in most species of ducks and geese, it is pertinent to remark that this is an increase only of the birds observed in 1937 over those seen in 1936. One of the truly amazing features of the past season has been the statements sometimes heard that there are more ducks than have ever been seen before. It seems incredible that memories can be that short, particularly since a little thought would convince anyone that such a situation is impossible. Natural reproduction simply does not take place that rapidly. No form of bird life is likely to increase 100 percent in a single season.

Nevertheless, even were such a miraculous situation possible, our continental stock of ducks and geese probably would not total more than two-thirds of what existed before the 'waterfowl depression'."

WILDLIFE NEEDS ACTION, NOT WORDS

The value and management of wildlife resources too frequently have been entirely overlooked by the vast majority of farm management and other land-use specialists. Farmers and other landowners are accused of destroying wildlife habitats, yet the leaders of agriculture fail to give proper attention to this profitable natural resource in planning diversified land-use programs. However, should it be said that the farm management specialists have fallen down on their jobs by neglecting to consider wildlife conservation along with their other activities? Or do the differences of opinions, as to what should be done, among the so-called wildlife conservation technicians contribute to the lack of understanding on the part of farm management specialists and others who would want to do something for wildlife.

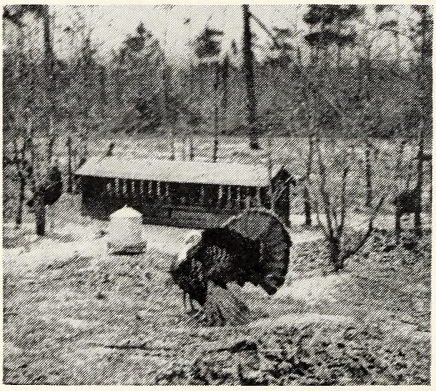
The criticism of farmers for destroying wildlife habitats belongs in the same category as criticism of the early settlers for cutting and burning trees in order to cultivate the soil. Progress in this country certainly would have been much slower had it been necessary to wait until all forest products could have been economically used before any cutting was done. Likewise, much criticism is directed at lumber companies and other landowners for stripping their holdings of timber and then allowing the land to become a burden on the rest of the community when in reality the taxation system in many states is virtually saying "Cut your timber as fast as you can and get out or go bankrupt."

These references all lead back to the idea that frequently economic considerations and leadership play important parts in the development and use of natural resources. Experience has indicated that many of the agricultural agents and other farm leaders are anxious to help improve wildlife conditions, but so much confusion and differences of opinion have been present that such leaders have been at a loss to know how to do constructive work.

At first, it was thought that restrictions on hunting and fishing would solve all problems relating to the conservation of

wildlife and farm leaders and others gladly assisted in making known the reasons for such actions. Though game laws are absolutely necessary, these restrictions alone have failed to halt the decrease of wildlife and, consequently, other ideas have been forthcoming.

The next big step in an attempt to conserve game birds and other animals was the wave that swept the country to kill all hawks, owls, foxes and other predatory animals which might even look at a game animal. And in good faith the agricultural and conservation leaders took this idea to the farmers and sportsmen and the slaughter began. The job of spreading this idea was so well done that even today so-called "vermin killing campaigns" are all too common and frequently are a decided hindrance to the establishment of sound wildlife conservation. The people were, and are yet, to some extent, paying out of one pocket large sums of money for killing off the so-called predators, while extracting from the other pocket, funds to combat rats, mice and other rodents and insects. Needless to say, the game supply continued to decrease.



Artificial propagation in North Carolina is carried on mostly for experimental purposes.

The next plea to save all wildlife advocated the formation of large wildlife refuges where no hunting was to be allowed. Conservationists again took an active part and as far as big game animals, waterfowl and the like were concerned, considerable good was accomplished. But the idea of large refuges got out of hand and large no-hunting units were established with no provisions for maintaining the environment so necessary to materially benefit the wildlife for which they were intended, namely quail, rabbits, squirrels and other small game animals. In fact, many of these so-called refuges degenerated into "private hunting grounds."

Following closely on the heels of this activity was the advent of artificial propagation of game, and here again after many years of draining game funds, it has been quite thoroughly determined that artificial propagation of game has not solved the

problem of an adequate game supply in any State, and here again as in the case of predator control, the idea was so convincingly told to sportsmen and landowners that the real work of wildlife conservation is frequently hampered.

It has been little wonder that many agricultural leaders, landowners and sportsmen have lost faith in activities designed to benefit game in view of all these mix-ups. It is only natural that these people are skeptical of ideas which are advocated by present-day wildlife conservationists. But it has been interesting to note that many of these same people are interested in trying again to do something for wildlife, and it should be the plan of everyone who is actively participating in wildlife conservation work to take the good parts from the hunting and fishing restrictions, to be sensible in the control of birds and other animals which prey on game, to advocate the development of refuges where they can serve a useful purpose, and above all, to work with all landowners to help develop and maintain their properties so that more wildlife will be able to take care of itself and reproduce successfully. And thus, if confidence is restored and if everyone is permitted to work in the same direction, it should be possible to maintain a semblance of the once abundant game supply. The most important thing right now is to get work underway in the field. There is a great need for educational work to be sure, but unless such work leads to definite actions in the field, little has been accomplished. Certainly there has been sufficient talking during the past ten years, but in only a few states has the work actually gotten underway in the field. The wild animals unfortunately cannot get the enjoyment and benefit from the English language that man does.

BENEFICIAL FOOD HABITS OF SONG BIRDS

Lovers of bird life and those interested in attracting song birds to the premises as an aid in the control of insect pests will find the observations of Mr. W. L. Chambers of near Lillington, N. C., interesting. The writer could not help but notice the numerous bird houses and the quantity of bird life around the farm home and buildings. Further questioning as to the presence and relative numbers of game and song birds in the community revealed that here was a farmer who realized the value of birds on his farm.

To quote Mr. Chambers, "It has been proven to me by my own observations that one of the most valuable allies of the American farmer is an abundance of song and game birds. I am putting into practice all the information I can get on how to attract and protect song birds. Besides the pleasure of seeing and hearing these attractive friends around the home, they more than repay me for the little time and thought given to their welfare.

One day I was standing at the edge of a corn field with a friend who was crow hunting when a sapsucker lit on an ear of corn. My friend shot him and for curiosity we opened the craw to see what the bird had been eating and found twenty-three pink corn worms. My friend said, 'I guess in my lifetime I have killed fifty of those birds and I have just killed my last one.'

When I first moved here I had seven cats and although I was trying to have more song birds by building houses and feeding them during the winter, my efforts did not seem to be successful as the birds seemed to avoid the home grounds as nesting sites. One day I saw a little house wren fly to her nest where a cat was waiting and before I could protect her the cat had another good meal. It occurred to me that maybe this was the reason the birds were avoiding the home grounds. Looking around I found cat claw marks on all the trees leading to bird nests. I got rid of all my cats but one and one is sufficient for any farm home.

See that hedge row over there? I let that grow up purposely to provide nesting sites and I can show you a dozen song birds' nests including catbirds, grass sparrows, blue birds, robins, wrens and mocking birds in that hundred yards of hedge row."

Looking out over the adjoining farm of large fields with ditch-banks stripped of standing vegetation, I couldn't but wonder if the owner wasn't missing the benefits of our feathered friends.

To further quote Mr. Chambers: "I have wanted to attract more blue birds and came to the conclusion that the lack of proper nesting places was limiting their increase. I provided houses made of sections of hollow logs with the ends stopped up and a hole bored of the right size to exclude the paws of a cat. Since providing these houses and getting rid of my cats my blue birds have come back and are increasing."

THE COVER FOR THIS MONTH

That the farmers of North Carolina entertain more than just a passive interest in wildlife is indicated by the picture on the

cover of this issue of NORTH CAROLINA WILDLIFE CONSERVATION, which shows a sizeable food patch developed by Farm-Game Cooperator R. E. Jones, whose farm is located near Wake Forest, N. C. This area, once serving as a tobacco plant bed, was sowed by Mr. Jones during the spring of this year and now supports a fine stand of Korean lespedeza. Such patches must be maintained for several years if an increase in quail is to be expected.

Judging from the reports of Field Biologists, about ten or fifteen percent of those landowners contacted sign Cooperative Farm-Game agreements. While many more cooperators could be obtained, caution is exercised in establishing Game Management Areas in order to obtain good demonstrations and avoid setting up projects which amount to nothing more than posted property. The success of this program will depend largely on the amount of actual wildlife improvements made and while protection through State posters is very important, agreements will be cancelled in the future when investigations indicate that areas have developed into private hunting grounds.

Any attempt to improve conditions for upland game, in the final analysis, must center around the landowner. The sportsman must realize that he is indebted to the farmer for the privilege of hunting on his land, consequently, he should solicit his friendship. Most farmers would not object to hunting on their farms if they could be reasonably sure that the hunters would conduct themselves in a gentleman-like manner, respect their property and refrain from shooting all of their birds. The farmer is just as interested in maintaining an abundance of game as the hunter is, which is a fact too frequently overlooked.

4-H CLUB MEMBERS IMPROVE WILDLIFE HABITATS

The recent activities of 4-H Clubs in behalf of wildlife conservation in this State deserve encouragement and praise. In Guilford and Forsyth Counties, cooperative programs in the form of food patch contests between club members have been made possible through seed, fertilizer and prize money contributions from the sportsmen organizations of these two counties.

At present, actual figures pertaining to these contests are not available, however, it is understood that at least 150 club members from Guilford and 80 from Forsyth have planted food

patches adjacent to suitable winter cover on their farms. In the fall, the boys and girls having the best patches, will be given substantial prizes.

Such activities manifest cooperative spirit from all parties involved, which is the crying need in wildlife conservation today. These programs are valuable from an educational standpoint and also, will be responsible for accomplishing some constructive work. By offering the boys and girls an inducement to become interested in wildlife, the sportsmen are helping educate the future farmers to practice wildlife management. The only sound approach to the farm game problem is through the landowners and these sportsmen 4-H Club contests are attacking the problem in the right direction.

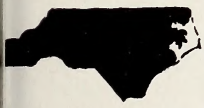
County Agriculture Agents, Boy Scouts, Girl Scouts, and other organizations are no doubt carrying on wildlife conservation programs of which we have little knowledge. Short articles dealing with club conservation activities are invited, and if sufficient material is available, a section devoted solely to such reports will be provided each month in NORTH CAROLINA WILDLIFE CONSERVATION. Let us hear from you.

BIOLOGICAL SURVEY TO ADD 9,895 ACRES TO WILDLIFE REFUGES

The purchase of additional lands, by the U. S. Biological Survey, totaling 9,895 acres adjacent to fourteen already established wildlife refuges, has recently been approved by the Migratory Bird Conservation Commission. Acquisition of this land "is regarded as necessary to round out these refuges and facilitate administration."

The Biological Survey is gradually enlarging its system of refuges in order to protect waterfowl nesting and wintering grounds, and thereby preserve the sport of duck hunting for future generations. In addition to these protected areas, this Bureau maintains a number of refuges in the west to preserve the range of big game, such as antelope and bison.

JULY
1938



North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA WILDLIFE CONSERVATION

N. C. DEPARTMENT OF CONSERVATION AND DEVELOPMENT
R. BRUCE ETHERIDGE, DIRECTOR

DIVISION OF GAME AND INLAND FISHERIES
JOHN D. CHALK, COMMISSIONER

PUBLISHED MONTHLY BY THE DIVISION OF GAME AND INLAND FISHERIES WITH THE COOPERATION OF THE ZOOLOGY DEPARTMENT, NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, RALEIGH, N. C.

PERMISSION TO REPRINT MAY BE OBTAINED PROVIDED PROPER CREDIT IS GIVEN.

VOLUME II. JULY, 1938. NUMBER 7

EDITORIAL

Under the Cooperative Farm Game Program, all cooperating landowners have agreed to keep their hunting dogs up from May 1 to September 1, the breeding season of game. While it is encouraging to find that these landowners are living up to their agreements, it is very discouraging to receive complaints that their neighbor's dogs run loose and are hunting on cooperating areas.

At the present time, there is no law which can be effectively applied in such cases. The only recourse the landowner has is to shoot such hunting dogs while they are trespassing on his property. Most landowners hesitate to do this, however, because they would rather settle the matter peacefully. In the few cases where the owners of such dogs have been approached in a friendly manner and asked to cooperate in keeping their dogs penned during the breeding season, they have become very indignant.

Now, the wildlife belongs to all the people of the State, and open seasons are arranged to permit the taking of game by all who wish to hunt and obey the regulations. It, therefore, does not seem fair for the free ranging dogs and cats of a relatively few people to destroy a third of the game animals while such animals are too young to care for themselves.

There must be a solution to this problem. A little concerted effort on the part of sportsmen, landowners and others would, no doubt, find the solution.

A SKETCH OF THE HISTORY OF WILDLIFE CONSERVATION IN NORTH CAROLINA*

By H. H. Brimley,
Curator of Zoology, State Museum

Before entering into the history of the conservation of wildlife in North Carolina, it would seem appropriate to present a brief sketch of what had previously been done in earlier days by other peoples as a background to what follows.

The first conservation law of which I have knowledge is to be found in the Bible, Deuteronomy, Chapter XXII, Verses 6 and 7, where it is provided that the young or eggs of a bird may be taken from the nest, but the female bird must be spared.

Previous to the Conquest of England by the Normans in A. D. 1066, there was a law that prohibited hunting on Sundays, perhaps the first real game law. Later, monks were forbidden to hunt in the wood with dogs. And, when notice was given that the King would hunt on a certain day, no one else in that immediate territory, noble or otherwise, was allowed to take the field. Following the Conquest, hunting was restricted to the nobility and heavy penalties were imposed on those who failed to abide by the stringent game laws that had been enacted; hence, the banding together of outlaws of the Robin Hood type whose love of the chase could not be squelched by any kind of a game law, so they used their bows and arrows on the red deer even at the risk of the hangman's noose.

"The Master of Game", a book on hunting written by Edward, Duke of York, about 1412, and reprinted in 1909, is probably the oldest book on this subject. I was rather surprised to find in it the following statement: "But as for hunting (as compared with hawking) there is no season of all the year that game may not be found in every good country, also hounds ready to chase it. And since this book shall be all of hunting, which is so noble a game, and lasting through all the year of divers beasts that grow according to the season for the gladdening of man, I think I may well call it Master of Game."

---

*NOTE: Due to the length of Mr. Brimley's manuscript, it has been necessary to present his article in three parts, the first of which, appears on this and succeeding pages.

However, later in the book one discovers that a "fence-month" was in force that forbade not only the hunting of deer during the month that ran from 15 days before to 15 days after, midsummer, but also any disturbance of the animals during that period even to the extent of keeping all swine, cattle and stray dogs out of the woods, with watch and ward kept by men with weapons. These protectors may have been the first game wardens of record.

In Izaac Walton's "Compleat Angler", published in 1653, the author mentions certain "fence-months", in which fish might not be taken, March, April and May being mentioned particularly, to cover the spawning season of the salmon. Walton also calls attention to "wise statutes" made during the reigns of King Edward I (1272-1307) and King Richard III (1483-1485) in which "one may find several provisions made against the destruction of fish."

From "The Gentleman's Recreation, a Treatise of Hawking and Faulconry", published in 1674, I am quoting the following extracts:

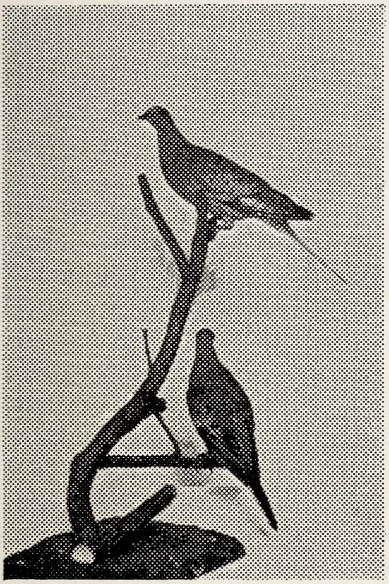
From "An Abstract of such Statute Laws as concern Fowling":

"None shall destroy or take away the Eggs of any Wild-fowl, in pain to forfeit for every Egg of a Crane or Bustard so taken or destroyed twenty pence. Of a Bittern, Hern (heron) or Shoveland eight pence. And of a Mallard, Teal or other Wild-fowl one penny, to be divided between the King and the Prosecutor."

"None shall hawk or hunt with his Spaniels in standing grain, or before it is shocked (except in his own Ground, or with the Owner's consent) in pain to forfeit forty shillings to the Owner of the said Ground."

"Every Constable or Headborough (upon warrant under the hand of two Justices of the Peace) hath power to search the Houses of persons suspected to have any Setting Dogs or Nets for the taking of Pheasants or Partridges; and the Dogs or Nets there found to kill and cut to pieces at pleasure, as things forfeited unto the said Officers."

The abstracts also include laws against the following practices: Hunting on another's land without permission, the sale of game that is not handreared, night hunting, and the taking of Pheasants or Partridges between the first of July and the last of August.



"Had the country become conservation-conscious earlier, the passenger pigeon might have been retained."

These laws, made more than 300 years ago, contain principles that are still recognized by conservationists, such as the non-destruction of property when hunting on another's land, the preservation of the nests of game birds, the non-sale of game, the requirement of permission to hunt on another's land, the prohibition of hunting at night, and closed seasons for game. So, the official control and conservation of wildlife is not as modern a problem as some of us have been inclined to believe.

In 1936, the Luton Museum, of Luton, Bedfordshire, England, published a most interesting volume entitled "Bedfordshire Vermin Payments", in which are listed a vast number of items relating to bounties paid for the destruction of vermin in the various parishes into which the county is divided, the entries dating from 1563 to 1872. The data is mainly made up of extracts from church records, the church wardens in those days being the administrative officers of the individual parishes.

People in general, even parish officials, were not exactly literate in the earlier days of these payments and the spellings are, in places, something wonderful and fearful to behold. The word "fox" is spelled in 9 different ways; "mole", 14; and "otter", 19. In 177 entries for weasel, there are 32 variations in spelling; 53 for polecat; and no less than 80 for hedge-hog.

It would seem that the fund for the paying of bounties must have been rather elastic in its application, judging from the following extracts:

"1687. Item paid to Robert Clarke for Clarkes Sheep (clerkship) and mole cating and for washing of the surplish (surplice) and other table linen for the Comemuneion table this yeare last past, L 2. 1 s. 0 d."

"1808. Bout a drink for Jona Rowletts Daughter Bit by a Mad Dog, 5 s." "Cleaning the church of Dogs, 4 s."

As most of the foregoing matter relates to how the game situation was handled in England in the early days, we may now pass on to a sketch of its history in the United States.

The protection of the game itself, rather than the grant of exclusive game rights to certain exalted personages, has, from the first, been the principle on which the game laws of the United States have been based. The earliest U. S. game law of which I can find a record was when in 1623, the Plymouth Colony declared hunting, fishing and fowling to be free, except on certain private property, but that wild game and fish were not to be molested during their reproduction seasons.

However, as the pioneers began their movements to the south and west from the first settlements on the east coast, wild game was their main sustenance and for a long period necessity called for the killing of such game as was needed pretty much irrespective of the time of year. Such killing, however, had little effect in reducing the supply.

Deer, bear, turkey, passenger pigeons and wildfowl were found in such abundance as to make it certain to the pioneer hunters that the vast resources of food supply could never be exhausted, and real conservation laws were so slow in coming that much of our game had been reduced to the point of exhaustion before definite and drastic laws were enacted for the preservation of the pitiful remnants.

Not that anyone is particularly to blame for this. No one could foresee how rapidly the game would disappear. The bison (American buffalo) had to give way to the farmer and the cattleman on the western plains and there is not need to shed tears over what occurred. It was an economic question that had to be answered in favor of the agriculturist. But there are many more thousands of bison today in the country than there were 20 or 30 years ago.

The passenger pigeon might, perhaps, have been retained as a fairly common species had the country become conservation-conscious earlier than it did. Everyone conversant with the bird realized that it was decreasing in numbers but it became extinct before anyone realized that it was nearing the danger point, and there was no come-back in this case.

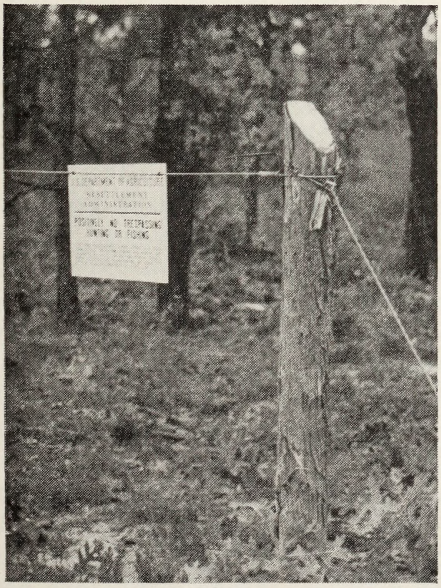
State Rights was the rallying cry and the oversight of the game and other natural resources of the country was left in the hands of the individual states, with disasterous results.

(*To be continued*)

BIG GAME REFUGE SYSTEM BEING CONSIDERED FOR NORTH CAROLINA

Though in North Carolina, as in most other states, the original range of the larger game animals has been greatly reduced as a result of a so-called progressive civilization, there still remain numerous suitable areas throughout the State now devoid of deer, bear and wild turkeys but which under proper management may again become productive of such game species. That the answer to the problem of managing wide ranging game lies in a system of well distributed and properly protected refuges is clearly brought out by the increased annual kills in states operating refuges as well as some of the National Forests.

Some few years ago, a number of so-called auxiliary refuges were established in various sections of the State on private lands. Some of these no doubt were of considerable benefit but others, in all probability, did more harm than good. A few reverted to private hunting grounds for the landowners, while in others, proper protection was not provided and respect for State posters was wanting. From this experience, it is evident that if refuges are expected to produce results, they must be inviolate sanctuaries in fact, and not merely "paper refuges."



Refuges on the Sandhills Project are surrounded by a single strand of smooth wire about waist high and the boundaries are posted with metal signs.

In view of the varied topography supporting an abundant and diversified vegetation and the temperate climate of North Carolina, all of which favor the production of game, the Division of Game and Inland Fisheries recognizes the need for establishing areas where wide ranging species can reproduce unmolested and find a reasonable amount of safety during hunting seasons. With the administration and management of game on the Federal owned 60,000 acre Sandhills Land Use Project at Hoffman, N. C.

Plowing a food patch on the Sandhills Project. On this area management will be chiefly concerned with the rehabilitation of the environment.

scheduled to be transferred to the Division in the near future, comes an opportunity to start the organization of a refuge system. For the purpose of obtaining preliminary information, Mr. J. C. Darsie, a graduate student in game management at North Carolina State College, will be employed during the summer months. As much of the area as limited time permits, will be cover mapped in order to determine the location, density and types of food and cover vegetation found on the area. In addition, notes on the distribution and abundance of wildlife, especially deer and turkeys, will be gathered. From this information, the Division will have a better picture of wildlife conditions on the Projects, a more effective management plan will result, and much will be learned that will be of considerable assistance in the development of refuges in the future.

Situated in the heart of the sandhills where repeated uncontrolled fires have robbed the land of its fertility exposing, in many places, the bare mineral soil, game developments on the Hoffman Area will be chiefly concerned with the rehabilitation of the environment. Just what can be done along these lines will depend upon available funds. However, before large scale activities are attempted, a series of experiments will be undertaken to determine the most practical and economical management procedure.

Three refuges, aggregating almost one-half of the total area of the Hoffman Project, were arbitrarily established by the Resettlement Administration and each unit surrounded by a single strand of galvanized wire. In addition, refuge signs have been placed at three hundred foot intervals along the boundaries. It is hoped that these areas may be re-located and reduced in size

to provide as much open public hunting ground as possible, yet assure ample protection for conserving breeding stock.

While consideration is here being given to a refuge system primarily designed for the benefit of the larger game animals, the attention of sportsmen is directed to two vitally important points which must be faced if this system is to succeed. The first of these is hunting deer with dogs. As was pointed out, refuge areas must afford game complete protection during the breeding season and serve as safety zones during the hunting season to prevent overshooting. No way has yet been devised whereby a dog trailing a deer can be taught to respect refuge boundaries. Unless deer can find some place to rest when hunted, it is a waste of the sportman's money to set up refuges which amount to nothing more than posted land. It is significant that hunting deer with hounds is outlawed in all states having sound, effective refuge systems, and that on National Forest lands dogs are not tolerated.

Secondly, adequate protection must be provided. While the problem of effective protection applies to all forms of wildlife, this point is particularly important on refuges if State posters are to mean anything and results expected. Managing an area for maximum populations of game will amount to little unless the hunting public cooperates.

MODERN AGRICULTURAL PRACTICES AFFECT WILDLIFE

Many changes have taken place in the last decade in the general agricultural practices on the farmlands of the State. Thousands of acres of land have been cleaned for new farmlands and with the coming of modern farm machinery intensive methods of cultivation have been adopted. And, because of misleading information and directions regarding the control of certain insect pests, grassy and brushy areas are indiscreetly burned. These agricultural changes, when considered collectively from a state-wide angle, have had a decided influence on the environment of many species of animal life. Intensive cultivation and an abundance of wildlife do not go together.

On very few farms today, do we find what was once called a fallow field. The farmers years ago followed the practice of allowing certain fields to lay fallow for one year. This system of

farming resulted in the formation of well distributed areas covered with a variety of plants which greatly benefited the natural production of quail. By laying idle one year, these fields afforded nesting sites, plenty of desirable range, and most important of all, weeds, grasses, and native legumes volunteered that furnished the necessary food. On most farms today, crop rotations are used that do not call for any land laying idle. Crops follow crops immediately, and the environment necessary for quail is gradually destroyed and the available range reduced.

On very few farms ten years ago did we find the farm machinery we have today. Little attempt was made to cultivate every foot of the land on the farm. Wide hedgerows were left between fields and no great effort was made to cut and burn all brush from ditchbanks. In contrast, today cultivation is carried on right up to the fence lines. Shrubby field borders and grassy areas near fields are burned, thus destroying much needed cover and nesting sites. Ditches are also cleaned and burned, resulting in fields of from fifty to five-hundred acres of bare land across which quail are reluctant to travel.

In the old days, small grains were cut with a hand cradle resulting in a quantity of seeds being left on the ground. Our grains are now cut with a combine that waste little or no seed.

Old fashioned farming was better for the production of quail as it provided the necessary types of cover, nesting sites and food. Better quail environment can be produced on many of our farmlands today by giving more thought to the necessary requirements of these birds.

POSITIVE ACTION CHARACTERISTIC OF PENNSYLVANIA'S GAME PROGRAMS

One year ago, the North Carolina Division of Game and Inland Fisheries recognized the need for carrying wildlife restoration beyond the printed page into the fields and the Cooperative Farm Game Program was inaugurated largely for this purpose. This was the first progressive step taken by the Division in the direction of applied game management.

Some thirty years ago or more, Pennsylvania recognized this need and acted accordingly. Today her forests abound in deer and other game. In the June issue of Pennsylvania Game News

there appears an editorial entitled "Positive Action Advancing" that indicates that it takes more than game laws to increase game. The editorial reads as follows:

"The Pennsylvania Game Commission has long championed the theory that what wildlife restoration and management needs most is positive rather than negative action. It has long since discarded the all too prevalent idea that more and more restrictive legislation will do the trick.

One of Pennsylvania's first positive steps was the creation of a state-wide system of game refuges, inviolate havens where wild creatures may retreat when pursued. No State today boasts a more comprehensive system of such areas, surrounded by public hunting grounds.

The sportsmen of Pennsylvania now own 575,000 acres of State Game Lands, scattered throughout 53 counties, with 35,000 acres more under contract for purchase. These lands are being managed primarily to produce good hunting, and today the Game Commission has underway an extensive cover and food improvement program thereon in an attempt to guarantee a maximum annual crop of game.

For years the problem of getting landowners to cooperate in improving instead of injuring game habitats, and at the same time to assure more open hunting grounds in thickly populated farming regions, has given everybody much concern. Now Pennsylvania's new cooperative farm game projects, with an aggregate acreage of 44,000 acres, provide a positive approach to this problem with definite benefits to both landowners and hunters. These projects will serve as demonstration areas, which should help to spread the idea throughout the State.

There is, however, grave doubt whether it ever will be possible for the Commission to enter into such close cooperative agreements with anything like a majority of our 190,000 farmers. The next job, therefore, is to find a way to spread the benefits of wildlife habitat improvement through the same channels which have been responsible for the destruction of wildlife habitats, especially the clean-farming craze.

Those advisors who contact the farmers regularly have, in a large measure, been responsible for this situation, especially where they were not wildlife conscious.

Now the Pennsylvania Game Commission has entered into a cooperative agreement with the U. S. Biological Survey and the Pennsylvania State College to maintain at State College a biological research and demonstration station, which will make available

to County Agents, farmers, and sportsmen alike information through the application of which landowners may enjoy the benefits of an abundant crop of wildlife without interfering with farming. Hereafter the same channels will be used to bring about a restoration of wildlife habitats that were used to encourage their destruction. This will speed up positive action, and assure results."

A ROBIN ROOST

A few days ago I had the opportunity of going with two friends to a so-called "Robin Roost" near Troy in Montgomery County. According to the State Game Commissioner, some four and one-half million birds were stopping several days at this spot as a resting place in their migratory flight northward. After they have spent the day looking for food in the surrounding territories, these robins fly back to roost here each night in a thicket of pine trees covering about two thousand acres. When our little party paid its visit, we were rather disappointed to find that a great many birds had already left, but despite this fact, there were still to be seen such huge hosts of them as to inspire anyone with awe and reverence.

We arrived on the scene a few minutes before six o'clock and much to our surprise and dismay saw not one single bird. The sky was sprinkled with fleecy clouds, and the early March sunset diffused them with a pale yellow glow. Against this slowly fading background the hilltop with the dark green pine thicket nestled snugly to its side stood out in bleak contrast, a setting of staunchly rugged beauty. But alas, the picture was not complete without birds, for after all they were really the objects of our sight seeing trip.

Then suddenly the peaceful silence of the rustic surroundings was broken. A distinct but far-away cry was heard, and a small covey of birds was seen winging its solitary way over a neighboring hill. Swiftly these birds approached and after circling overhead once or twice, they settled noisily into the thicket with many chirps and twitters. Scarcely had these alighted when four or five more coveys appeared from different directions, and while we watched these flying in broken orbit around the summit of the hill, suddenly and seemingly out of nowhere rushed forth a mighty surge of winged creatures. The sky was covered with them and the sound of their flapping wings assumed the tone of a

low and hushed roar. Now semi-darkness enveloped the countryside and gradually the mighty hosts formed into one group and revolved in the sky, coming lower at each turn until finally it merged into the thickets. In a few moments the birds sank to earth and the heavens were empty. The twittering and the chirping subsided. It was dark and the evening star shone forth brilliantly from a rift in the clouds. The day was done. God had provided rest for the creatures of his design, and peace and tranquility were supreme.

Scenes of such placid and majestic beauty bring to mind the words of Bryant's "To A Waterfowl".

> "He who, from zone to zone,
> Guides through the boundless sky thy certain flight,
> In the long way that I must tread alone
> Will lead my steps aright".

—PAUL BARRINGER, JR.

Reprinted from The *Panorama,* Sanford, N. C.

DEER TRAPS MAKE AMUSING CATCHES

A report from Mr. John Y. Eller, Game Warden at Pisgah, indicates that deer trapping is by no means a serious activity without humor, or that deer are the only curious inhabitants ranging our forest lands.

"Trap No. 7", states Mr. Eller, "made the most interesting catch of the deer trapping season. Two young ladies from a nearby town who could not resist the lure of forbidden fruit (apples are used for deer bait) were released by a good Samaritan after shedding many tears.

Trap No. 4 had the most unusual catch. This trap was found with all doors down and the trapping personnel were sure of a catch. Carefully raising the small wooden chute door to check sex and age of deer, a lady's handbag was found at the rear end of the chute. Two girls had placed the bag in the trap and thrown the doors to keep the bag safe.

Trap No. 19 had the most amusing catch of the season—a sad, but wiser deer hunter, who thought he could out-wit a deer trap. The hunter was later released by a special patrolman of the deer hunt.

Trap No. 12 had the only violation of the season. A would-be deer hunter found an eight-point buck confined to chute and after

carefully looking around, placed his rifle between the chute door and the top of the chute and after careful aim, fired and missed. The buck, however, obligingly moved and the man fired two more shots, killing it. He then dragged the buck to a point about 200 yards away. Shortly after, the trapping personnel came around to check the trap. The dead buck was recovered and the would-be hunter became hunted.

A FIELD BIOLOGIST FOR THE MOUNTAIN DISTRICT

To handle the many requests which have come from the mountain district, and to assist with the development of this portion of the State for deer, bear, wild turkeys, quail and other forms of wildlife, Mr. Edward L. Meadows, formerly with the U. S. Soil Conservation Service at Oxford, N. C., and Canton, Mississippi recently came with the North Carolina Division of Game and Inland Fisheries as Field Biologist.

Many people in several of the upper Piedmont counties where quail and other forms of farm game are present, have indicated a desire to cooperate in the Farm Game Program. In the mountains proper it will be one of Mr. Meadows' first tasks to make a more or less rapid survey of this section to determine the present abundance of deer, bear and wild turkeys, and to determine as far as possible additional sections of the western part of the State which appear suitable for big game, but which do not have a supply of these forms at the present time. The habits and requirements of ruffed grouse will be given some attention with the idea of giving this fine game bird a chance to increase its numbers in those portions of the mountains which appear suitable range for this species.

Mr. Meadows' headquarters will be in Asheville, and it is hoped that he will receive the same cooperation which has been given the Field Biologists in other parts of the State.

SCHOOL BOY POET

The poem reprinted on the opposite page originally appeared in a Burlington, N. C., newspaper and was written by Allen King, a grade school student of that city. If an appreciation of the value of wildlife could be brought before more of our young people today, many of the problems in the future would cease to exist. After all, it is but a few, short years from "sling shots" to shotguns and boys with an understanding of wildlife conservation may be expected to develop into better sportsmen.

The Songbird's Death

One beautiful day as I walked along,
I heard a Bluebird singing his song.
Then a moment later a shot I heard,
And I knew a boy had killed that bird.

Quiet and still that beautiful bird lay,
The boy, gun in his hand, walked slowly away.
For he knew not the harm he had done.
He thought he was only having some fun.

This bird has served the farmer well,
Saved him more money than tongue can tell.
He ate the bugs and worms away,
And never did he expect any pay.

A bird who once had sung so sweet,
And bad insects he'd surely eat.
He had no grave save the soil hard,
I made him one in my back yard.

Every time I pass his small grave,
It makes me think of the good he gave,
All because of that thoughtless boy
Who ended that beautiful songbird's joy.

—Allen King.

AUGUST 1938

North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA WILDLIFE CONSERVATION

N. C. DEPARTMENT OF CONSERVATION AND DEVELOPMENT
R. BRUCE ETHERIDGE, DIRECTOR

DIVISION OF GAME AND INLAND FISHERIES
JOHN D. CHALK, COMMISSIONER

PUBLISHED MONTHLY BY THE DIVISION OF GAME AND INLAND FISHERIES WITH THE COOPERATION OF THE ZOOLOGY DEPARTMENT, NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, RALEIGH, N. C.

PERMISSION TO REPRINT MAY BE OBTAINED PROVIDED PROPER CREDIT IS GIVEN.

VOLUME II. AUGUST, 1938 NUMBER 8

SPECIAL REGULATION FOR FARM GAME AREAS

At the recent meetiug of the Board of Conservation and Development, a regulation was passed which provides special protection to game on wildlife management demonstration areas established by the Division of Game and Inland Fisheries under the Cooperative Farm Game Program. It reads as follows:

> Unlawful for anyone, including landowner or tenant, to violate any regulation or agreement entered into with this Department under the Wildlife Management Cooperative Farm Game Agreement upon land which has been posted with the proper departmental cooperative agreement signs.

This regulation applies to both Wildlife Sanctuary and Game Management areas. It is UNLAWFUL TO HUNT OR TRESPASS WITH GUN, DOGS OR TRAPS on a WILDLIFE SANCTUARY area and GAME MANAGEMENT signs read NO HUNTING WITHOUT WRITTEN PERMISSION OF OWNER. This regulation is enforceable ONLY on lands signed up and posted under the Cooperative Farm Game Program. Game Protectors now have authority to arrest any person violating the provisions set forth on the yellow, cardboard, State signs posted along the boundaries of these areas.

It is hoped that all landowners cooperatiug with the Division of Game and Inland Fisheries will actively assist in protecting Farm Game demonstration areas by reporting violations to the County Game Protectors immediately.

A SKETCH OF THE HISTORY OF WILDLIFE CONSERVATION IN NORTH CAROLINA*

By H. H. Brimley,
Curator of Zoology, State Museum.

When we come to the history of wildlife conservation in North Carolina, we are confronted with the problem of knowing where to start. Up to fairly recent times, our people had been so used to the belief in local self-government, with the preservation of our game a matter to be handled individually by each of our large number of counties, that State-wide laws on the subject had been very few in number.

PROTECTION OF DEER RECOGNIZED BY LAW IN 1745

Some difficulty was found in trying to trace back the earlier laws of the State as they relate to game considered as a State-wide problem, but one was finally dug up that would appear to be worth presenting in full as, besides calling attention to the fact the deer appeared to be the only species of game deserving of protection, it also provides an insight into the long hunting season allowed (seven months) as well as the tendency of irresponsible persons to ignore any law restricting what they considered their inherited privileges. This law, enacted by the General Assembly of the Province of North Carolina in 1745, is as follows:

"Chap. III, Laws of 1745. An additional Act to An Act, to prevent killing Deer at unseasonable Time, and for putting a Stop to many Abuses committed by white Persons, under Pretense of hunting.

1. Whereas by the before-recited Act, it is, among other Things, Enacted, That it shall not be lawful for any Person to kill or destroy any Deer, running wild in the Woods or unfenced Grounds in this Government, by Guns, or any other Ways or Means whatsoever, between the Fifteenth Day of February and the Fifteenth Day of July, Yearly, in each Year, after the Ratification of the said Act; and that any Person convicted of the same, shall forfeit and pay the Sum of Five Pounds, current Money: and whereas it appears, that the allowing Liberty of killing Deer in fenced Grounds and Inclosures at such Seasons, has given Room to several Persons to evade the said Law:

---

*NOTE: This is the second part of Mr. Brimley's article on the History of Wildlife Conservation in North Carolina.

II. We therefore pray that it may be Enacted, and be it Enacted, by his Excellency Gabriel Johnston, Esq., Governor, by and with the Advice and Consent of his Majesty's Council, and General Assembly of this Province, and it is hereby Enacted, by the authority of the same. That if any Person shall be convicted of killing Deer, or having Venison, or a green Deer skin, or skins, in his House, Camp, or Possession, between the Fifteenth Day of February, and the Fifteenth Day of July, Yearly, after the Ratification of this Act, he shall forfeit and pay the Sum of Forty Shillings, Proclamation Money; to be recovered and applied as hereinafter directed.

III. Provided nevertheless, That nothing in this Act shall be construed to extend or convict any Person or Persons of the said Forfeiture, in whose House any Venison, green Skin or Skins, shall be found, which hath been left in such House without the Knowledge, Privity or Consent of such Person, or any of his family, upon due proof thereof to be made, by the Person therewith charged.

IV. And forasmuch as there are great Numbers of idle or disorderly Persons, who have no settled Habitation, nor visible Method of supporting themselves, by Industry or honest Calling, many of whom come in from neighboring Colonies, without proper Passes, and kill Deer at all Seasons of the Year, and often leave the Carcasses in the Woods, and also steal and destroy Cattle, and carry away Horses, and commit other Enormities, to the great Prejudice of the Inhabitants of this Province; be it therefore Enacted, by the Authority aforesaid, That every person who shall hunt and kill Deer in the King's Wast within this Province, and who is not possessed of a settled Habitation in the same, shall be obliged to produce a Certificate, when required, of his having planted and tended Five Thousand Corn hills, at Five Feet Distance each Hill, the preceding Year, or Season, in the County where he shall hunt, under the Hands of at least Two Justices of the Peace in said County, and the Hand of at least one of the Churchwardens of the Parish where such Person planted and tended such Corn, as aforesaid.

V. And be it further enacted, That if any such Person as aforesaid is found hunting and does not produce such Certificate, when required, he shall forfeit his Gun and Five Pounds, Proclamation Money, for every such Offense; to be recovered and applied as herein after directed.

VI. And whereas many idle Persons, who spend their chief

Time in hunting Deer, leave the Carcasses in the Woods, by which means Wolves, Bears and other Vermin are raised and supported, which destroy the Stocks of the Inhabitants of this Province; be it therefore further Enacted by the Authority aforesaid, That every Person who hunts Deer, and leaves the Carcass or Carcasses in the Woods, undestroyed, shall, for every Offense, forfeit and pay Forty Shillings, Proclamation Money.

VII. And be it further Enacted, by the Authority aforesaid, That all fines and Forfeitures mentioned in this Act, shall be paid, the One Half to the Informer, the other Half to the Churchwardens, for the use of the Parish wherein such offense shall be committed, to be recovered, with Costs, by a Warrant from any Justice of the Peace within this Government; saving to all free persons the Right of Appeal to the County Court where such Offense is committed: Which Court is hereby impowered and directed, in a summary Way, finally to determine the same; wherein no Essoign, Protection, or Wager of Law, shall be allowed or admitted of."

In the Code of 1854, I could find nothing in the index under Quail, Game, County Game, or Local Game statutes. When I tried "Deer", I found a reference to "Burning Woods," and under that title was found a law to the effect that two days before burning off woods notice must be given to all adjoining property owners, with a maximum penalty of $50 provided for infraction. Directly following this the closed season for deer was given as February 20 to August 15, allowing an open season of six months.

LAWS PROVIDE FOR PROTECTION OF OTHER WILDLIFE

In the Code of 1883, the following State laws relating to game were found: Hunting deer by firelighting was forbidden, with reference to laws of 1784, 1801, 1856-7 and 1870. The deer season was August 15 to February 15. In 1868, firelighting of wild-fowl was prohibited. In 1870-71, it was made illegal to shoot wildfowl at night or on Sunday, or by a gun that could not be fired from the shoulder. In 1874 and 1881, the taking of

Along our coast-line water birds were slaughtered by the thousands for the millinery trade.

partridge, quail, dove, robin, lark, mockingbird or wild turkey was illegal from April 1 to October 15. Five and half months allowed for the shooting of robins, larks and mockingbirds. There seemed to be no protection of any kind for any other form of wildlife than the four game birds and three non-game species protected by the act.

Prohibited of shipping quail out of the State became a law in 1876, and the open season for wildfowl in Currituck County was made November 10 to March 10, with no shipments during the closed season. Non-residents (of the State, I presume) were prohibited from using a battery or other floating device for wildfowl shooting in Currituck and Dare Counties.

And so we dragged along, the spirit of conservation not being in us. In fact, the phrase "Conservation of Natural Resources" was unknown to us and we blindly went ahead passing many additional county game laws at every session of the Legislature. So many people thought—and often still think it—that all we have to do to relieve a situation is to Pass a Law. As a matter of fact, passing a law is often equivalent to passing the buck!

LOCAL GAME LAWS MANY AND DIVERSE

But we surely did not fail to pass local game laws, the following figures being taken from publications of the Bureau of Biological Survey of the United States Department of Agriculture: In 1909, 43 states in which the Legislatures had been in session passed 215 laws relating to game—and North Carolina was responsible for 79 of them! In 1911, the 43 states adopted game laws to the number of 260, of which 71 were passed by the Legislature of this State. In 1915, North Carolina put 61 new laws relating to game on the statute books, out of 240 by the 43 states as a whole. Can you beat that! Judging from these figures, it would be reasonable to believe that in the earlier days of this century we had on our statute books from one-fourth to one-fifth of all the game laws of all the states in the Union, with, perhaps, as low a rate of enforcement as any.

I do not mean to infer that none of the legislation of this period was constructive. A very small proportion of the laws were State-wide in character, prohibiting the shipping of live quail out of the State for stocking purposes being one of them, but it is the general attitude of the Legislature, representing the opinions of our citizenship at large, to which attention is directed.

It was not until 1903 that T. Gilbert Pearson, teacher of Biology at the North Carolina College for Women, in Greensboro, came to the rescue. After heroic efforts, he succeeded in securing the passage of an Act of the Legislature that provided for the protection of song-birds and placed the administration of this phase of the new law, and the administration of the local game laws then on the statute books, under the North Carolina Audubon Society, of which Pearson was the executive officer.

This was the first step towards recognizing the principle of State control of our wildlife.

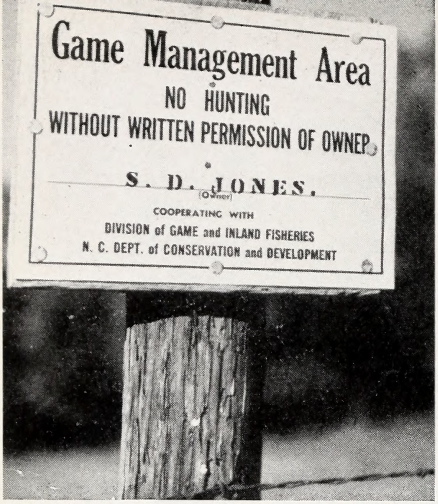
Previous to this, the administration of the vast number of county and other local game laws lay with the county officials. Becoming interested in the matter at that time, I had occasion to make some study of these local laws. I found that the various counties had more than forty different hunting seasons for Bob-White and about the same number for deer. I also found that nine adjoining counties in the eastern part of the State, in which almost exactly the same physical conditions prevailed, had no less than *13 different deer seasons,* some of them applying only to a single township. In one eastern county, deer were given no protection, it being perfectly legal to kill a deer while nursing her fawns—and then kill the fawn! In another county, the deer season opened on the fourth of July, the summer killing of deer for fresh meat being quite generally practiced. Quail netting was not frowned upon in many of the best quail counties, bullbats were shot just to see them fall and robins were quite generally killed for food purposes.

Along our coast-line, gulls, terns and egrets were slaughtered by the hundreds of thousands for the millinery trade and, on the sounds up and down the coast, wildfowl were killed for the market in very large numbers but no definite figures are available, all this being done legally, with no bag-limit on anything and not much practical restriction as to open seasons in the case of any of our game.

"How are we goin' to git fresh meat in summer if we kaint go out and kill us a deer?" or "There allus has been plenty of chub in the crick and we aim to keep on ketchin' 'em when we damn please", represent the attitude taken by many of the old-time hunters and fishermen of those days.

One should go slow, however, in too severely condemning these old believers in a Divine right to take fish and game at any time

(Continued on Page 13)



THE C
FARM GA
A Report of Pr

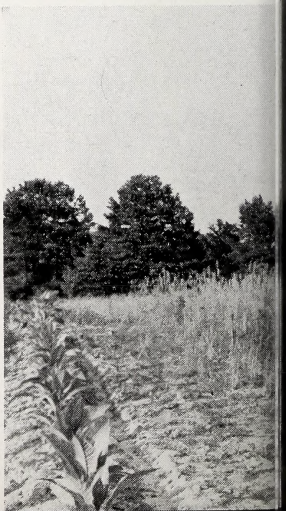
INTRODUCTION

The Wildlife Management Section of the Division of Game and Inland Fisheries was established July 1, 1937 primarily for the purpose of organizing and carrying out the Cooperative Farm Game Program. Since considerable time was required to work out detailed plans for the program and allow the Field Biologists to become acquainted with the problems in their respective districts, actual field work was delayed until September 1. At this time a Field Biologist was stationed in five of the six Game Management Districts with headquarters as follows: Williamston, Kinston, Raleigh, Rockingham and Salisbury.

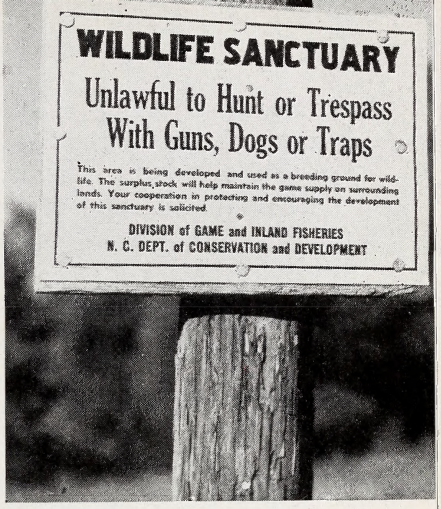
During the first fiscal year, the Field Biologists individually contacted approximately 2,500 people throughout the State and explained the Farm Game Program. Of these, eighty-five percent were farmers, and the remainder sportsmen. The interest encountered, varied considerably with different counties and sections, however, it is interesting to note that Farm Game Program agreements were signed with thirteen percent of the landowners contacted. This figure is encouraging from the landowner-wildlife interest angle. If thirteen percent of the farmers are now willing to make wildlife improvements on their farms, it is reasonable to assume that in the future a much larger percentage can be expected to regard wildlife as a crop and to manage their lands accordingly.

AGREEMENTS

A total of 234 agreements covering 88,958 acres in individual farms were signed under the three wildlife management plans. These demonstration areas have been established in 60 of the State's 100 counties. The mountain section was untouched by the program due to the lack



RATIVE
PROGRAM
ng the Past Year



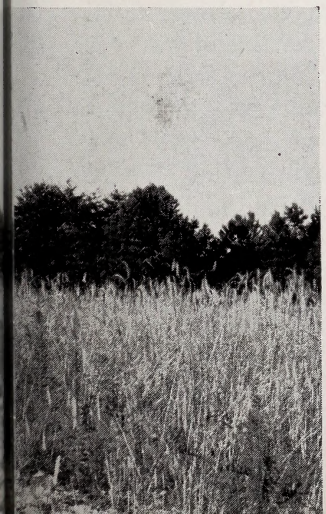
of a Field Biologist to carry on the work there, however, a man has been assigned to this district recently.

In some sections more agreements were signed than in others because the Field Biologists discovered more interest in the program or because the counties were canvassed for cooperators more thoroughly. Other counties have been slightly neglected due to the lack of time during the first year for the field men to cover their districts completely. The ultimate aim of the program is to establish two or three demonstrational areas in each township of the State except possibly a few of the thinly populated counties of the extreme eastern and western portions.

In some localities where agreements have been signed, interest in the program has spread to such an extent that the Field Biologists are constantly besieged to take in more lands. Compliance with these requests will be impossible until the original plans of establishing demonstrations in each township have been completed.

So far the Regulated Hunting idea has proved to be the most popular of the three wildlife management plans, and 178 agreements covering 69,548 acres were signed under this plan during the first year. Many farmers although willing to abolish quail shooting were reluctant to resign all hunting privileges on their properties because of a desire to engage in an occasional rabbit hunt. Such landowners, invariably have been signed under the regulated hunting plan and requested to permit a reasonable amount of quail shooting.

Under the Five-Year Sanctuary plan, 37



Farm Game wildlife management demonstration areas are posted with signs as shown in the photographs above. Left: This half acre of grain was left unharvested to provide food for quail on a cooperating wildlife management area in Granville County.

farms comprising 11,404 acres have been accepted. These areas were chosen by the Field Biologists with respect to locality and suitability for serving as natural wildlife breeding grounds from which the overflow of breeding stock would benefit the surrounding farms. There seems to be a great need in this State for the establishment of such areas. Farmers cooperating under the Five-Year Sanctuary plan are extending to the State and the sportsmen a service which should be appreciated.

Under the Temporary Sanctuary plan, 14 agreements covering 8,006 acres were signed. While this plan is sound from a management standpoint, a few farms have been discovered where the owners' interest and the wildlife supply warrant its use.

In addition to cooperators operating under agreements, the program acquired 129 so-called fourth-class cooperators. This classification includes landowners making wildlife field improvements on their farms at the suggestion of the Field Biologists without signing agreements. The approximate acreage of these farms was 39,470. The services of Field Biologists in planning wildlife improvements are available to all landowners regardless of whether or not agreements are signed.

FIELD IMPROVEMENTS

The planned field improvements for the farms signed under agreements during the first year varied considerably with owner's interest, types of farms, presentation of program by field men, and different sections of the State. In the beginning it was thought best to proceed slowly until the wildlife interest among the landowners could be determined and the organization could get its feet on the ground, so to speak. In a short while contacts assured

The dense broomsedge in this field has crowded out natural quail foods and now provides conditions which favor the increase of Cotton Rats. On Farm Game demonstration projects such areas are disked, thus destroying the habitat of this enemy of quail and permitting native quail foods to develop.

that the Department could secure some excellent cooperation with the program from practically all sections of the State, and the Field Biologists were instructed to raise the requirements for field improvements.

Cotton Rats are known to destroy quail eggs and also feed to a considerable extent on quail foods. The picture above shows a female Cotton Rat with five one-day old young. Litters with as many as a dozen young have been recorded.

Throughout the first year, improvement in agreement-writing technique has been made and definite policies have been created as rapidly as the best methods could be determined.

The present method of setting up field work is to draw a rough sketch map of each farm signed and to separately describe each operation the farmer agrees to perform. This gives both the farmers and Field Biologists a clear record of the improvements to be made. In many cases the response of the cooperators in developing their farms according to the planned field improvements exceeded even our highest expectations. As a whole, the activities of the cooperators during the first planting season could be considered as satisfactory.

On several cooperating farms, landowners were persuaded to permit additional cover to become established naturally along ditchbanks and in the forms of clumps and hedgerows. This practice will, in time, greatly improve wildlife conditions in that new quail covey ranges will be created, especially in large fields where food is located too far from cover to be utilized safely by quail. The establishment of bushy cover is a slow process except in the eastern portion of the State where landowners, due to the high value of cultivated land, seem most reluctant to adopt these practices.

STRAY CATS AND DOGS

One iron-clad policy of the Program is that all cooperators must agree to reduce to a reasonable number the house-cats kept

on their properties, and keep all hunting dogs confined during the breeding season of game. Failure to carry out these requirements is considered adequate grounds for cancellation of the agreement. So far the Program has received fair cooperation in these matters, and no agreements have been cancelled because of failure to fulfill these parts of the contracts.

The tremendous numbers of stray cats and dogs roaming this State present a discouraging problem to those endeavoring to increase wildlife. It is felt that the more people that can be aroused against this undesirable condition, the quicker some sort of State-wide action can be effected.

With a few exceptions, the signs for posting cooperating farms were properly placed. In the beginning, in order to assure adequate posting, it was planned to have the Field Biologists aid the landowners in erecting signs. It soon became evident that the field men would not have sufficient time for such purposes, so the entire responsibility for this phase of the program was shifted to the landowners.

VIOLATIONS

Two violations were committed on cooperating farms posted with the State signs. One occurred in Richmond County and the violator was prosecuted by the landowner for hunting without a permit. He was convicted and fined $28.00. In a similar case in Edgecombe County, the violator was prosecuted by the landowner for attempted assault. A conviction of this charge was thought by the landowner to be sufficient punishment and he could not be induced to bring further charges under the game laws. No doubt, other violations occurred and escaped attention, however, the landowners as a whole were well pleased with the protection received through the use of State posters.

QUAIL AND TURKEY SEASON ADVANCED

At the semi-annual meeting of the Board of Conservation and Development at Morehead City, July 11 and 12, the open season for turkey and quail shooting for the next hunting season was changed to December 15-February 20, both dates inclusive.

For the past several years the general sentiment throughout the State has been in favor of a shorter quail season; in fact, a great many requests have been made for a closed season, but our investigations which have extended to all counties of the State indicate that we had a better carry-over of adult birds

during the past winter than we have had for three or four years, and while there has been considerable early hatching of quail this summer, the season as a whole has been unfavorable to ground nesting birds. The excessive rains during the past six weeks have drowned out some of the young birds and destroyed many clutches and at the present time you will find more late nestings than we have had for a number of years, which means, of course, that there will be a late crop of young birds.

In view of the foregoing facts, the Board reached the decision that it would be best to give the young birds time to develop before opening the season. Considerable pressure was brought to bear for an extension to March 1 but by adding five days to the end of the season, making the closing date February 20, gives us a 65-day open period, which we believe is as long a shooting season as our present quail supply will justify.

The general opinion among sportsmen and hunters is that our quail season has always opened too soon and in this opinion I concur, but believe that on an average season, December 15 may be later than is necessary. In fact, we considered opening it at various dates between December 1 to 10 but after giving due consideration to the biological conditions existing this season in relation to ground nesting birds, we reached the conclusion that December 15 was as early as the season should be opened.

J. D. CHALK, *Commissioner,*
Division of Game and Inland Fisheries.

A SKETCH OF THE HISTORY OF WILDLIFE CONSERVATION IN NORTH CAROLINA

(Continued from Page 7.)

in any numbers in the days before the principles of conservation began to be accepted and the knowledge of them diffused. They had been brought up in the belief that the wild creatures of the woods and waters had been placed there specifically for the use of those humans fortunate enough to live in contact with the birds and animals, and they strongly resented any attempt to curtail such privileges.

(*To be concluded in next issue*)

EXTRACTS FROM THE NORTH CAROLINA GAME LAWS, SEASON 1938-39

LICENSE PROVISIONS AND FEES

All persons are required to procure a license to hunt or trap during the open season subject to rules and regulations prescribed by the Board of Conservation and Development. Exception: resident children under sixteen when parent or guardian has proper license or residents hunting or trapping on own or tenanted land.

Six months of actual residence in State immediately preceding application is necessary to qualify for a resident license.

Any person acting for hire as a hunting guide or receiving compensation as such is required to obtain, in addition to his hunting or trapping license, a guide's license. All guides are responsible for the behavior of their parties and are liable for cancellation of license and conviction for violation of Game Law.

Trappers are required to have a separate license to trap.

FEES

Non-Res. Hunting License	$15.25	Guide's License	$ 5.25
State " " "	2.10	Non-Res. Trappers License	25.25
County " " "	1.10	State " " "	3.25
Combination Hunting and Fishing License	3.10	County " " "	2.25

Licenses do not give the right to hunt or trap on posted land or waters.

OTHER FEES AND LICENSES

A propagation permit, fee $2.00, is required to propagate game birds or animals in captivity. A permit, fee $2.00, is required to hold legally possessed game birds and animals in captivity for exhibition or other purposes.

All who purchase or solicit to purchase furs, pelts, hides or skins of fur-bearing animals must first obtain a fur dealer's license. (Apply to Division of Game and Inland Fisheries or County Game Protector).

FEES

Non-Resident Fur Dealer's License	$100.00
Non-Resident Fur Dealer's Permit—Entitles licensee to buy furs only from State-wide licensed Fur dealers	1.00
State Resident Fur Dealer's License	25.00
State Resident Fur Dealer's Employee's License	25.00
County Resident Fur Dealer's License	10.00
County Resident Fur Dealer's Employee's License	10.00
County Resident Fur Dealer's Permit—Entitles licensee to buy furs at his established place of business in resident County	5.00

SEASONS AND BAG LIMITS

GAME	OPEN SEASON (inclusive)	Bag Limit Day	Bag Limit Season
Bear (1)	Oct. 1-Jan. 1	2	2
Deer (Male) (2)	Oct. 1-Jan. 1	1	3
Opossum, Raccoon (with gun or dogs only)	Oct. 15-Feb. 15	No limit	No limit
Opossum, Raccoon, Mink, Muskrat, (trapping) (3)	Nov. 1-Feb. 15	No limit	No limit
Otter	NO OPEN SEASON		
Quail	Dec. 15-Feb. 20	10	150
Turkey (4)	Dec. 15-Feb. 20	1	3
Ruffed Grouse	Nov. 20-Jan. 1	2	10
Rabbit	Nov. 20-Feb. 15	No limit	No limit
Squirrel (except Foxsquirrel) (5)	Oct. 1-Jan. 15	10	No limit
Fox Squirrel	NO OPEN SEASON		
Russian Boar	Oct. 20-Jan. 1		
Fox (6)	COUNTY REGULATIONS		
Wildcat, Weasel, Skunk	NO CLOSED SEASON		
Beaver, Buffalo, Elk, Doe Deer, Fox Squirrel, Otter, Pheasants, and all other protected wild birds and animals for which no open season is provided have no open season.			

EXCEPTIONS IN SEASONS

(1) Bear: In Alleghany, Wilkes, Caldwell, Burke, Rutherford, and all counties west of these —Oct. 20-Jan. 1.

(2) Deer (Male): In Alleghany, Ashe, Avery, Cherokee, Clay, Macon, McDowell, Surry, Wilkes, Yadkin, and Yancey Counties—NO OPEN SEASON. In Sampson County—Nov. 1-Nov. 30.

(3) Trapping: Currituck and Dare Counties, Trapping—Dec. 1-Mar. 1. COUNTIES CLOSED TO TRAPPING: Unlawful to set steel traps in Bladen, Columbus, Craven, Graham, Greene, Haywood, Hoke, Pender, Robeson, Sampson, and Wilson, except on own premises for protection of domestic fowl or crops; and in all counties west of Surry, Wilkes, Alexander,

Catawba and Cleveland except that such steel traps may be set for muskrat and mink in the water and along streams in the cultivated portions along said streams.

(4) Turkey: In Alleghany, Ashe, Avery, Cherokee, Clay, Macon, Surry, Wilkes, and Yadkin—NO OPEN SEASON.

(5) Squirrel: In Alleghany, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, Mitchell, Polk, Rutherford, Stokes, Surry, Swain, Transylvania, Watauga, Wilkes, and Yancey Counties—Sept. 15-Dec. 15.
Alamance, Caswell, Davidson, Chatham, Davie, Durham, Forsyth, Franklin, Granville, Guilford, Northampton, Orange, Person, Rockingham, Rowan, Vance and Warren Counties, split season—Sept. 1-Sept. 30 and Nov. 20-Jan. 31.
Ashe County—Sept. 1-Nov. 15.
McDowell County—Oct. 1-Dec. 15.

(6) Fox: County regulations. In those counties not having a local fox law, foxes may be taken with guns only during the open season on other game animals.
Gaston County: All game birds and animals (except quail, dove and migratory waterfowl) Thanksgiving Day to January 31. Quail—Dec. 15-Jan. 31. Doves and migratory waterfowl governed by Federal regulations.

Unlawful to possess more than 2 deer, 2 wild turkey, or 2 days' bag limit of other game birds or game animals at any time, or to possess any game bird or animal or parts thereof after 10 days next succeeding the close of such open season.

Unlawful to hunt or trap within 500 yards of high water during flood periods on any stream.

Unlawful to sell squirrel in Buncombe, Cherokee, Clay, Craven, Graham, Haywood, Henderson, Jackson, McDowell, Swain and Transylvania Counties and rabbits in Surry County.

Unprotected birds and animals are English Sparrows, Great-horned Owls, Coopers and Sharp-shinned hawks, Crows, Jays, Blackbirds, Starlings, and Buzzards, Wildcats, Weasels and Skunk. These cannot be killed by use of poison or dynamite except under permit.

Unlawful to hunt on Sunday.

Unlawful to hunt in Alexander, Davie, Gaston, and Iredell Counties when snow is on the ground.

It is hereby made unlawful to sell rabbits or possess them for the purpose of sale at any time of the year, except during the open shooting season thereon. (Nov. 20 to Feb. 15).

Unlawful for anyone, including landowner or tenant, to violate any regulation or agreement entered into with this Department under the Wildlife Management Cooperative Farm Game Agreement upon land which has been posted with the proper departmental cooperative agreement signs.

Possession Limits: Two day bag limit of Game birds and animals lawfully taken and possessed may be transported within the State during the open season and ten days next succeeding the close of such open season.

Non-resident licensee, under permit from Game Commissioner, may export, except by parcel post, not more than 2 male deer and 2 wild turkeys a season and not more than 2 days' limit of other game animals and birds.

1938-39 FEDERAL MIGRATORY WILD FOWL REGULATIONS FOR NORTH CAROLINA

		Bag Limit	Possession Limit
Dove	Sept. 1 to Sept. 30 Dec. 20 to Jan. 31	15	15
Woodcock	NO OPEN SEASON		
Duck*	Nov. 15 to Dec. 29	**10	**20
Geese*	Nov. 15 to Dec. 29	5	10
Jacksnipe, Wilson	Nov. 15 to Dec. 29	15	15
Coot	Nov. 15 to Dec. 29	25	25
Sora	Sept. 1 to Nov. 30	15	15
Rail, Marsh Hen	Sept. 1 to Nov. 30	15	15
Gallinule	Sept. 1 to Nov. 30	15	15

*No open season on Wood duck, Brant, Ross's Goose, Snow Goose, and Swan.
**Daily bag limit on Canvasback, Redhead, Bufflehead, and Ruddy Duck not over three in the aggregate.
Possession limit not over six in the aggregate.

RESTRICTIONS

Illegal to hunt waterfowl or doves on or over baited areas.

Illegal to use live decoys or to drive, rally or chase with airplane, power boat, sail boat or other floating device.

Illegal to take migratory game birds from or by aid of an automobile, airplane, sinkbox, battery, power boat, sail boat, any boat under sail, any floating craft or device of any kind towed by power boat or sail power.

Illegal to shoot waterfowl before 7 a. m. or after 4 p. m.

Illegal to use shotgun larger than 10 Ga. or an automatic or hand-operated repeating shotgun capable of holding more than three shells, the magazine of which has not been cut off, or plugged with 1-piece metal or wooden filler incapable of removal through the loading end thereof.

PTEMBER

1938

North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA WILDLIFE CONSERVATION

N. C. Department of Conservation and Development
R. Bruce Etheridge, Director

Division of Game and Inland Fisheries
John D. Chalk, Commissioner

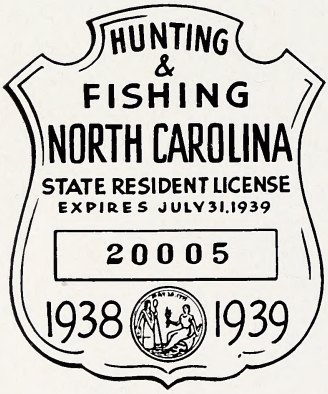
Published monthly by the Division of Game and Inland Fisheries with the cooperation of the Zoology Department, North Carolina State College of Agriculture and Engineering, Raleigh, N. C.

Permission to reprint may be obtained provided proper credit is given.

Application for entry as second-class matter is pending.

VOLUME II. SEPTEMBER, 1938. NUMBER 9

NEW LICENSES ISSUED



Reminding the individual sportsman of his personal responsibility in observing and assisting in the enforcement of game and fish laws, the 1938-39 combination hunting and fishing license will be in the form of a badge. The new licenses will be of metal, finished in nickel, with black numerals, and are made up in the form of a shield. They are now on sale in every county in the State and may be purchased through Game Protectors and authorized sales agents.

"With the advent of the new license," said J. D. Chalk, State Game and Inland Fisheries Commissioner, "hunters and fishermen will, no doubt, have the fact that they are custodians of the wildlife of the State more forcefully impressed upon their minds. They will also be reminded that they have an individual responsibility in the protection and conservation of the creatures of the stream, field and forest.

The Department of Conservation and Development is constantly improving its protector service, but no matter how efficient this group may become, they could not cope adequately with the situation without the interest and cooperation of the sportsmen who not only observe the laws themselves, but help to see that others do likewise."

A SKETCH OF THE HISTORY OF WILDLIFE CONSERVATION IN NORTH CAROLINA

By H. H. Brimley,
Curator of Zoology, State Museum

When Pearson, as executive officer of the State Audubon Society, took over the administration of the new law protecting song-birds and the conflicting mass of local game laws in force in the 97 counties of the State, he was faced with a very difficult situation, or perhaps it would be better to say, quite a number of difficult situations.

The robin had always been considered a game and food bird in the rural districts, and robin-pie was by no means unknown to the dwellers of our cities, but now this succulent dish was prohibited. No longer could the swirling bullbat be legally used as a flying target for our gunners, and we could not legally take the young mocking-birds for cage pets. From the boy with the Flobert rifle had been taken the joy of shooting song-birds in the shade-trees around the house, and the dweller in the country who was accustomed to go out and kill a mess of squirrels or quail for the family table at any time of the year he saw fit was now to learn of the existence of a new kind of official known as a Game Warden. Then, too, if the wardens were local men, working on small salaries, they were naturally loath to arrest men of prominence in their communities who were found committing infractions of the new laws. The apathy of the general public on this matter of game and bird protection was another obstacle in the path.

FUNDS LIMITED

The limited funds available for the administration of the law was a further serious handicap, the only money made available by the Act being that resulting from a ten-dollar license fee to be collected from each non-resident hunter. It was no bed of roses into which T. Gilbert Pearson had fallen. But Pearson was an educator, a pioneer, an enthusiast (I might almost say a Moses) with a mission, and the most compelling public-speaker—particularly on the subject of bird-protection—I have ever known. A fine organizer and administrator and, coming from good old Quaker stock, the word "failure" was not in his vocabulary. So he plunged ahead.

NOTE: This is the third and concluding part of Mr. Brimley's enlightening article on the History of Wildlife Conservation in North Carolina.

Quite naturally, he got into deep water, but, by organizing local Audubon Societies all over the State, by preaching bird protection at every available opportunity, he so far educated the coming generation to the point where many of our people were slowly becoming conservation-conscious.

It is not necessary to go into the details of the difficulties encountered by Pearson in his efforts for the protection of our birds. Needless to say, he did a noble work—but made a lot of enemies in his efforts to carry out the new law. As Legislature succeeded Legislature, county after county had its name stricken from the list of those under the administration of the Audubon Society, until, in 1910, Pearson was called to a larger field of work as Secretary and executive officer of the National Association of Audubon Societies, with headquarters in New York, of which he had been Secretary, under President William Dutcher, since 1905.

In the years immediately following Pearson's acceptance of a much wider scope of work in another State, no enthusiastic conservationist was found to take his place. Sympathizers with his efforts were many but all such were men engaged in making a living in other lines with but little time to devote to the matter in which Pearson had been the leader and controlling spirit.

Another reason for the increase in opposition to the so-called "Audubon Law" was the realization that a peculiar condition had been created, that the administration of a certain group of laws, the collection of privilege taxes connected therewith (non-resident license fees), and the disbursement of State funds had been placed in the hands of a self-perpetuating corporation.

STATE-WIDE GAME BILL DRAFTED

The drift of counties away from the control of the Audubon Society increased until its income had dwindled to the point where no progressive or constructive work was longer possible. So, the Directors of the Society decided to approach the Legislature with a real State-wide game bill, including the establishment of a State Game Commission.

With all the information available in other States in which this method of game conservation had proved successful, and with a knowledge of conditions in North Carolina, a bill was drafted and submitted to the Legislature of 1913. This was the first attempt to place our game birds and animals under State-wide control with uniform open seasons. Circulars showing the need for a change in game law administration in North Carolina,

signed by the late Dr. R. H. Lewis, President of the Audubon Society, and by the writer, as Vice-President, were prepared and distributed, and both of us appeared before the Game Committees of the Legislature in support of the bill.

As expected, the bill failed to pass; in fact, it was given very little serious consideration except by its sponsors. But the entering wedge had been driven in.

In 1915, 1917, 1919 and 1921, the Audubon Society introduced other bills along the same lines, each one an improvement and modernization of its predecessor. Each was killed in its turn, but public sentiment was slowly taking form and the opponents of the plan gradually discovered that these bills required more and more effort to bring about their defeat.

In 1823, Representative Wade, of New Hanover County, introduced a bill, based on the previous Audubon Society's bills, which was also defeated.

In 1923, Representative Wade, of New Hanover County, intro- and the N. C. Fish and Game League Bill, the main features of each being those of the bills submitted in previous years by the Audubon Society.

But public sentiment, after having undergone a process of evolution along with the character of the bills, had by then crystallized to the point where the opponents of the measure had to use their utmost efforts to prevent the substitute for the two original bills becoming a law.

The 1927 bill, which in an amended form became the law of the State, as it relates to game, was a further development of the bills that had preceded it, though again modified to suit new developments and changing conditions. This bill was introduced by Mr. Fred Sutton, of Kinston, who ably piloted it to its final success. This was the first Act to abolish the mass of local game laws that had proved so unsatisfactory, the first recognition of the principle of State-wide seasons for game, and it contained the first provision for licensing the resident hunter and fisherman, previous game licenses being imposed only on non-resident hunters. In other words, we had at last emerged from the woods.

PUBLIC SENTIMENT AROUSED

It will be seen from the foregoing that the present legal status of the control of game in North Carolina is the direct result of efforts that began a number of years earlier. And all this is largely preliminary to one of the main points that I want particularly to stress.

This point is the fact that the long, worrying, and sometimes seemingly hopeless efforts towards the ends sought had all been accompanied by a slow-moving but steadily-growing public sentiment in favor of taking the only action possible to properly protect, preserve and rehabilitate our game, and other forms of wildlife.

It will not do to omit one important factor that has done more to protect our wildfowl, shore birds and other migratory species, than any local legislation could have done, this being the Migratory Bird Treaty between the United States and Canada in 1913, followed by the Enabling Act adopted by Congress in 1919. The North Carolina Legislature of 1931 enacted an amendment to our State-wide game law making it conform to the Federal Enabling Act and the regulations adopted by the United States Department of Agriculture under the said act.

Has the present plan, under the present administration been a success? Most emphatically it has. Errors have no doubt been made, but mere humans have had to do the work. As I see it, those in charge, from the top down, have worked conscientiously to carry out the spirit of the law and to administer it with the least amount of friction.

Among the successful features of the administration of our present game laws and regulations, I would submit the following: The lack of opposition to the law in general that has been encountered; the continued growth of public sentiment in favor of the newer conditions; the work done along educational lines, both through its game protectors and through its publications, by the Department of Conservation and Development; the establishment of a game farm and of additional fish hatcheries; the consideration given to suggestions from sportsmen; the establishment of game refuges and the farm-game cooperative plan; and the manner in which most real sportsmen have accepted the various detailed conditions provided in the Act and in the regulations of the Department, this latter being a result of the sportsmen's belief in the Department's honesty of purpose.

COOPERATION ESSENTIAL

BUT—and this word must be in capitals—the cooperation of the public is essential in the carrying out of any phase of conservation work. This means that all hunters and all fishermen, together with every one in any way interested in the conservation of our wild birds, wild animals and our forests, must not only do their best to abide by the laws, and the regulations of the Department of Conservation; but must also actively co-

operate with the officers of the Department in their efforts to administer these regulations. It is so much easier to quench a camp-fire, or grind a burning cigarette stump into the moist ground, than it is to fight a forest fire! And think of the other fellow and the younger generation coming into its own when the fish are striking and you are tempted to exceed your legal limit. This means YOU and this means ME!

GAME NEEDS PROTECTION

Unregulated hunting with no regard for the quantity of game killed has unquestionably resulted in the depletion of many of our good quail ranges. For years certain sections of the State had been known as good quail country and afforded good shooting. But much of the land hunted by the general public was owned by absentee landowners and no one seemed to be interested in the amount of game killed yearly. Sportsmen came back from year to year and always found their birds. Slowly, however, these sportsmen began to realize that they were not finding quail as abundant as in past years, a condition which has been observed in some sections of this State and resulted in mass meetings asking that immediate steps be taken to remedy the situation.

This fine quail food patch of Sericea lespedeza would have little value on an area where excessive hunting is permitted. The purpose of such patches is to carry over breeding stock through the winter months when food is scarce.

Gradually, we have come to the realization that many good quail ranges over a period of years had been slowly shot out. There had always been birds present but no one took it upon

himself to see that sufficient brood stock was left to repopulate the coverts another year. For years this insufficient brood stock had been augmented by birds from adjoining protected lands but even this supply had been so drained that it was not adequate to furnish brood stock for so much land that was depleted yearly by overhunting.

OVERSHOOTING HAS REDUCED GAME

While the depletion of game in general cannot be charged only to overshooting, agricultural practices, stray cats and dogs, and native predators playing their part, there are numerous indications that this factor was largely responsible for present game conditions in certain sections of the State. The forest land of much of western North Carolina, for example, should be supporting deer today. But deer are not there except on the Pisgah Game Preserve and a few scattered areas. Why? Overshooting is the answer.

Where many quail ranges were hunted by one or two people in the past the same areas due to hard surfaced highways are hunted today frequently to the last bird. A situation such as this quite naturally calls for a system of restrictions in order to preserve ample brood stock to maintain at least a semblance of the once abundant game. For this reason we have game laws. They are simply a system of rules which attempt to balance the amount of game killed annually with the amount of game raised annually. If we killed more game each year than was produced in our coverts we would steadily reduce our breeding reserve. If this continued, extermination of game animals would result. A rancher with the intention of remaining in business certainly does not sell more cattle than he raises each year. If he did he would eventually go broke.

GAME LAWS NECESSARY

While the game laws and their enforcement provide the basic structure upon which conservation practices depend these restrictions alone will not prevent further decrease in game. This is clearly indicated when we look into the history of conservation in the northern states. Because of the larger populations, more intense farming and good roads, game suffered depletion in those states long before North Carolina even thought about a state-wide game law. Back in those days the sportsmen there became alarmed about the game situation just as the sportsmen of this State have become aroused only recently. As might be expected, their first move was strongly in the direction of shorter

seasons. And the seasons were shortened until today in most of those states game can be legally taken during very restricted periods, some as short as a week or two. These regulations, it was thought, would prevent the decrease of game. But they most emphatically did not. Human beings in general are accustomed to take action only after damage has been done. The population of hunters had steadily increased and even with limited open seasons the amount of game killed annually overbalanced the amount of game raised each year.

SANCTUARIES SAVE GAME

Rigidly enforced game laws give game a chance to multiply during the breeding seasons and to a certain extent limit the amount of game killed but they do not prevent overshooting, particularly in areas near population centers where hunting is more concentrated. Further action must be taken and thus we see the development of refuges and sanctuaries which serve a dual purpose. First, they provide areas in which game can reproduce unmolested and secondly, they operate as an automatic check against overshooting during the hunting season, thus acting as reservoirs from which game overflows during the breeding season to repopulate adjacent territory. Sanctuaries then, constitute a second type of restriction since hunting, trapping and in many cases trespassing is prohibited.

Sportsmen must understand that sanctuaries are not established simply to reduce hunting territory. This is too frequently the attitude taken by hunters when they see a State refuge sign. Effectively enforced game laws prevent wide-scale massacre of game during seasons when it needs protection most. Sanctuaries prevent local overshooting by conserving breeding stock.

The importance of these areas can be readily understood if we consider incidents like the following. For the purpose of illustration let us assume the position of observers stationed in a well known quail range in which we know the location of say ten coveys of fifteen birds each, a total of 150 birds. On opening day, a party of five hunters arrive, they are all good shots, have good dogs and are sportsmen with respect for the game laws. The birds haven't been disturbed, weather is favorable and they put up the ten coveys. Being real sportsmen they take five out of each covey, fifty birds in all, their combined daily bag limit. That leaves 100 birds left. A few days later four more hunters arrive, real sportsmen too. Hunting is pretty good and they account for say 25 birds and go on their way. That leaves 75 birds left. Other hunters visit the same area, each taking a few

birds. Some of the heavily shot coveys get together and are shot down to say eight birds. The hunters in such cases believe they had shot into one covey, but in reality they had been shooting into the remnants of two or more coveys. This continues through several weeks until the season ends. We now take our dogs to make a census and find two coveys of ten birds left, the remnants of ten coveys banded together. Twenty birds remain where 150 were before the season opened. Quite a sad looking picture. Though the foregoing is purely theoretical, numerous contacts with sportsmen and landowners indicate that similar incidents occur very frequently.

No one can be blamed for such situations. Hunters were provided with proper licenses and game laws obeyed to the letter. Twenty birds were left as seed to restock the theoretical area cited. The birds yet have to withstand the critical food months of February and March, the stray cats and dogs, not to mention other predators. It can readily be seen that unless lands adjacent to this area were not heavily shot and thus provide breeding stock, only a very few coveys will occupy the territory where ten coveys ranged before. One good, properly managed sanctuary, would provide good, wild breeding stock for this immediate locality.

HUNTING MUST BE REGULATED

A third type of restriction, referred to as *regulated hunting,* is often utilized to prevent overshooting and constitutes an im-

Hunting must be regulated in order to make sure that sufficient birds remain in our coverts to reproduce and repopulate shot over areas.

portant part of Farm Game demonstration areas posted with "Game Management Areas" signs. In this case, hunting is permitted until a reasonable number of birds have been killed. The landowner or his authorized agent issues written permits and when in his estimation the reserve breeding stock is endangered he is expected to stop issuing permits. The regulation of the amount of hunting done on any area is very important and is frequently the determining factor in the time required to build up a good population of quail. Without regulation of the kill it is doubtful if an increase of game can be accomplished on many ranges even though they are highly developed as to food and cover requirements. It is not so much the amount of hunting permitted but the number of birds killed each year that determines whether or not an increase of game is possible.

Determining by observation the approximate number of quail present in order to decide upon the number of birds to be harvested provides a more definite way of knowing that sufficient brood stock will remain than by following the old idea of shooting coveys down to a certain number. Leaving six or eight birds in a covey is good conservation and is carried out by most sportsmen but it does not always work out that those birds are really left for breeding stock as was previously pointed out due to the fact that the remnants of heavily shot coveys get together and form full coveys which may be shot down a second or third time. This accounts for the remark often heard from sportsmen, "I flushed a big covey of birds the other day that had not been shot into."

To sportsmen who contemplate hunting their favorite ground again this season, now is the time to begin thinking about the regulated hunting problem. Get together with the landowner on whose lands you hunt, make arrangements to observe the approximate number of quail ranging his lands. Does he allow his dogs to free-hunt all summer when quail are breeding? How many house cats are on the place? Remember stray cats and dogs destroy game that is yours to enjoy.

NOTES and NEWS

FROM THE FIELD

"While driving in the Little River section of Richmond County about 5 P. M. Friday, July 22, my attention was attracted by a bird in the road about 75 yards ahead of me. As I approached, I could see that it was in a terrible state of excitement. I stopped my car to investigate what was going on, and to my surprise, I found a pair of adult quail and their brood of young. I first observed the male bird in the road and he appeared to be more excited than the hen. He was running around and fluttering as if one wing were broken and giving calls of alarm. I stood for a few minutes within 15 feet of this scene, after which the male bird disappeared in the bushes beside the road.

"Walking within several yards of where the bird disappeared, I found the hen in the same state of excitement. Approaching very cautiously in hope of getting an eye-view of the cause of this disturbance, I noticed some 12 or 15 young quail about a week old running in all directions seeking a place of safety. To my right, a short distance away, I heard a commotion as if some wild varmint was running through the bushes. Turning around to investigate this commotion, I noticed a large wild stray house cat. This cat ran four or five steps to an old log and turned his head to look at me, and needless to say, I made quick work of dispatching him and eliminating for all time his preying on game birds.

"This situation, from actual observation over the State, is a serious menace to wild animals and is proven by like instances reported by reliable parties and is not propaganda by ardent conservationists."

—WALTER BRAY,
Richmond County Game Protector

"While working around State Refuge in Pender County with W. L. Rivenbark and James Likens, we saw signs of a great number of deer. Also, saw a doe with a fawn two-thirds grown."

—GRAHAM K. EUBANK,
Onslow County Game Protector

"Our bird and turkey crop is encouraging. I hear reports every day of young birds and turkeys. We also have a large increase in deer."

—C. T. LAWRENCE,
Halifax County Game Protector

"While on the river the other day at a public fishing place, I watched a big fox squirrel eat a piece of watermelon that some fisherman had thrown away. He ate all he wanted and went on his way."

—DAVID ANDERS,
Bladen County Game Protector

"I found a pheasant nest with the hen pheasant setting near the town limits of Southern Pines."

—ALEX FIELDS,
Moore County Game Protector

"A thirteen year old lad from Dillsboro caught a 23½

inch rainbow trout with a cane pole. It looks like he is going to win a .22 rifle for catching the largest trout."

—MACK ASHE,
Jackson County Game Protector

"Due to the high water in the streams about Oxford, the quail are coming into the corporation limits of town. I know of six young coveys within the corporation limits of Oxford."

—ALEX A. WILLIAMS,
Granville County Game Protector

DISEASED SQUIRREL

Several months ago a diseased gray squirrel was received from Mr. G. L. Winchester of the Soil Conservation Service, Franklinton, N. C. As may be seen in the accompanying photograph, the animal was almost completely covered with a tumorous growth which had infected both eyes resulting in blindness. How this individual

was able to survive in this condition is truly remarkable.

The specimen was sent to Dr. J. E. Shillinger, in charge of disease control, U. S. Biological Survey, who diagnosed the affliction as due to a malignant type of tumor which probably would have caused death in a short time had it not been shot. "The cause of such conditions is not understood," stated Dr. Shillinger, "since scientific knowledge of tumor formations in general is very incomplete."

CHICKEN SNAKES

Mr. Jeff Corbett, Special Protector in Bladen County, reports the following interesting observation of a chicken snake. About thirty feet from his house he has a group of gourd bird houses on a pole about twenty feet high in which martins are nesting. About eight feet from the ground he has an old stovepipe two feet tall wrapped around the pole to keep cats from climbing up to the martin houses. One day he and his wife were attracted by the noise and actions of the martins. They would get in front of the nests flutter about while making a loud twittering noise. Thinking the adults were trying to get the young birds out of the nest he didn't investigate further. The next morning a large chicken snake was seen coming down the pole head first. The snake was killed and had eaten one adult martin. The martins about fifteen in number, deserted the nests and have not been back.

Mr. Stockman, Manager of the W. O. Bennett farm near Wadesboro, N. C. also relates a chicken snake observation. He had under observation a quail nest and in passing one day noticed that the nest had been torn up and that the eggs were gone. Looking around he saw a large chicken snake in a small bush a short distance away. He killed the snake and found in it the contents of the nest—16 quail eggs.

EXTRACTS FROM THE NORTH CAROLINA GAME LAWS, SEASON 1938-39

LICENSE PROVISIONS AND FEES

All persons are required to procure a license to hunt or trap during the open season subject to rules and regulations prescribed by the Board of Conservation and Development. Exception: resident children under sixteen when parent or guardian has proper license or residents hunting or trapping on own or tenanted land.

Six months of actual residence in State immediately preceding application is necessary to qualify for a resident license.

Any person acting for hire as a hunting guide or receiving compensation as such is required to obtain, in addition to his hunting or trapping license, a guide's license. All guides are responsible for the behavior of their parties and are liable for cancellation of license and conviction for violation of Game Law.

Trappers are required to have a separate license to trap.

FEES

Non-Res. Hunting License	$15.25	Guide's License	$ 5.25
State " " "	2.10	Non-Res. Trappers License	25.25
County " " "	1.10	State " " "	3.25
Combination Hunting and Fishing License	3.10	County " " "	2.25

Licenses do not give the right to hunt or trap on posted land or waters.

OTHER FEES AND LICENSES

A propagation permit, fee $2.00, is required to propagate game birds or animals in captivity. A permit, fee $2.00, is required to hold legally possessed game birds and animals in captivity for exhibition or other purposes.

All who purchase or solicit to purchase furs, pelts, hides or skins of fur-bearing animals must first obtain a fur dealer's license. (Apply to Division of Game and Inland Fisheries or County Game Protector).

FEES

Non-Resident Fur Dealer's License	$100.00
Non-Resident Fur Dealer's Permit—Entitles licensee to buy furs only from State-wide licensed Fur dealers	1.00
State Resident Fur Dealer's License	25.00
State Resident Fur Dealer's Employee's License	25.00
County Resident Fur Dealer's License	10.00
County Resident Fur Dealer's Employee's License	10.00
County Resident Fur Dealer's Permit—Entitles licensee to buy furs at his established place of business in resident County	5.00

SEASONS AND BAG LIMITS

GAME	OPEN SEASON (inclusive)	Bag Limit Day	Bag Limit Season
Bear (1)	Oct. 1-Jan. 1	2	2
Deer (Male) (2)	Oct. 1-Jan. 1	1	3
Opossum, Raccoon (with gun or dogs only)	Oct. 15-Feb. 15	No limit	No limit
Opossum, Raccoon, Mink, Muskrat, (trapping) (3)	Nov. 1-Feb. 15	No limit	No limit
Otter	NO OPEN SEASON		
Quail	Dec. 15-Feb. 20	10	150
Turkey (4)	Dec. 15-Feb. 20	1	3
Ruffed Grouse	Nov. 20-Jan. 1	2	10
Rabbit	Nov. 20-Feb. 15	No limit	No limit
Squirrel (except Foxsquirrel) (5)	Oct. 1-Jan. 15	10	No limit
Fox Squirrel	NO OPEN SEASON		
Russian Boar	Oct. 20-Jan. 1		
Fox (6)	COUNTY REGULATIONS		
Wildcat, Weasel, Skunk	NO CLOSED SEASON		

Beaver, Buffalo, Elk, Doe Deer, Fox Squirrel, Otter, Pheasants, and all other protected wild birds and animals for which no open season is provided have no open season.

EXCEPTIONS IN SEASONS

(1) Bear: In Alleghany, Wilkes, Caldwell, Burke, Rutherford, and all counties west of these —Oct. 20-Jan. 1.

(2) Deer (Male): In Alleghany, Ashe, Avery, Cherokee, Clay, Macon, McDowell, Surry, Wilkes, Yadkin, and Yancey Counties—NO OPEN SEASON. In Sampson County—Nov. 1-Nov. 30.

(3) Trapping: Currituck and Dare Counties, Trapping—Dec. 1-Mar. 1. COUNTIES CLOSED TO TRAPPING: Unlawful to set steel traps in Bladen, Columbus, Craven, Graham, Greene, Haywood, Hoke, Pender, Robeson, Sampson, and Wilson, except on own premises for protection of domestic fowl or crops; and in all counties west of Surry, Wilkes, Alexander,

Catawba and Cleveland except that such steel traps may be set for muskrat and mink in the water and along streams in the cultivated portions along said streams.

(4) Turkey: In Alleghany, Ashe, Avery, Cherokee, Clay, Macon, Surry, Wilkes, and Yadkin—NO OPEN SEASON.

(5) Squirrel: In Alleghany, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, Mitchell, Polk, Rutherford, Stokes, Surry, Swain, Transylvania, Watauga, Wilkes, and Yancey Counties—Sept. 15-Dec. 15.
Alamance, Caswell, Davidson, Chatham, Davie, Durham, Forsyth, Franklin, Granville, Guilford, Northampton, Orange, Person, Rockingham, Rowan, Vance and Warren Counties, split season—Sept. 1-Sept. 30 and Nov. 20-Jan. 31.
Ashe County—Sept. 1-Nov. 15.
McDowell County—Oct. 1-Dec. 15.

(6) Fox: County regulations. In those counties not having a local fox law, foxes may be taken with guns only during the open season on other game animals.
Gaston County: All game birds and animals (except quail, dove and migratory waterfowl) Thanksgiving Day to January 31. Quail—Dec. 15-Jan. 31. Doves and migratory waterfowl governed by Federal regulations.

Unlawful to possess more than 2 deer, 2 wild turkey, or 2 days' bag limit of other game birds or game animals at any time, or to possess any game bird or animal or parts thereof after 10 days next succeeding the close of such open season.

Unlawful to hunt or trap within 500 yards of high water during flood periods on any stream.

Unlawful to sell squirrel in Buncombe, Cherokee, Clay, Craven, Graham, Haywood, Henderson, Jackson, McDowell, Swain and Transylvania Counties and rabbits in Surry County.

Unprotected birds and animals are English Sparrows, Great-horned Owls, Coopers and Sharp-shinned hawks, Crows, Jays, Blackbirds, Starlings, and Buzzards, Wildcats, Weasels and Skunk. These cannot be killed by use of poison or dynamite except under permit.

Unlawful to hunt on Sunday.

Unlawful to hunt in Alexander, Davie, Gaston, and Iredell Counties when snow is on the ground.

It is hereby made unlawful to sell rabbits or possess them for the purpose of sale at any time of the year, except during the open shooting season thereon. (Nov. 20 to Feb. 15).

Unlawful for anyone, including landowner or tenant, to violate any regulation or agreement entered into with this Department under the Wildlife Management Cooperative Farm Game Agreement upon land which has been posted with the proper departmental cooperative agreement signs.

Possession Limits: Two day bag limit of Game birds and animals lawfully taken and possessed may be transported within the State during the open season and ten days next succeeding the close of such open season.

Non-resident licensee, under permit from Game Commissioner, may export, except by parcel post, not more than 2 male deer and 2 wild turkeys a season and not more than 2 days' limit of other game animals and birds.

1938-39 FEDERAL MIGRATORY WILD FOWL REGULATIONS FOR NORTH CAROLINA

		Bag Limit	Possession Limit
Dove	Sept. 1 to Sept. 30 Dec. 20 to Jan. 31	15	15
Woodcock	NO OPEN SEASON		
Duck*	Nov. 15 to Dec. 29	**10	**20
Geese*	Nov. 15 to Dec. 29	5	10
Jacksnipe, Wilson	Nov. 15 to Dec. 29	15	15
Coot	Nov. 15 to Dec. 29	25	25
Sora	Sept. 1 to Nov. 30	15	15
Rail, Marsh Hen	Sept. 1 to Nov. 30	15	15
Gallinule	Sept. 1 to Nov. 30	15	15

*No open season on Wood duck, Brant, Ross's Goose, Snow Goose, and Swan.

**Daily bag limit on Canvasback, Redhead, Bufflehead, and Ruddy Duck not over three in the aggregate.

Possession limit not over six in the aggregate.

RESTRICTIONS

Illegal to hunt waterfowl or doves on or over baited areas.

Illegal to use live decoys or to drive, rally or chase with airplane, power boat, sail boat or other floating device.

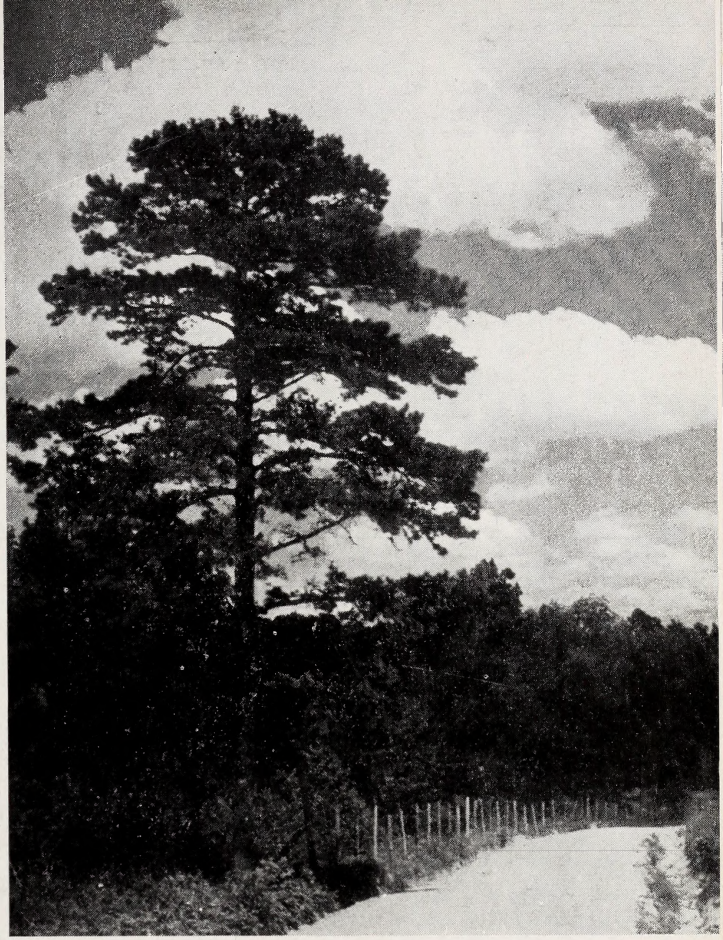
Illegal to take migratory game birds from or by aid of an automobile, airplane, sinkbox, battery, power boat, sail boat, any boat under sail, any floating craft or device of any kind towed by power boat or sail power.

Illegal to shoot waterfowl before 7 a. m. or after 4 p. m.

Illegal to use shotgun larger than 10 Ga. or an automatic or hand-operated repeating shotgun capable of holding more than three shells, the magazine of which has not been cut off, or plugged with 1-piece metal or wooden filler incapable of removal through the loading end thereof.

CTOBER

1938



North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA WILDLIFE CONSERVATION

N. C. DEPARTMENT OF CONSERVATION AND DEVELOPMENT
R. BRUCE ETHERIDGE, DIRECTOR

DIVISION OF GAME AND INLAND FISHERIES
JOHN D. CHALK, COMMISSIONER

PUBLISHED MONTHLY BY THE DIVISION OF GAME AND INLAND FISHERIES WITH THE COOPERATION OF THE ZOOLOGY DEPARTMENT, NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, RALEIGH, N. C.

PERMISSION TO REPRINT MAY BE OBTAINED PROVIDED PROPER CREDIT IS GIVEN.

APPLICATION FOR ENTRY AS SECOND-CLASS MATTER IS PENDING.

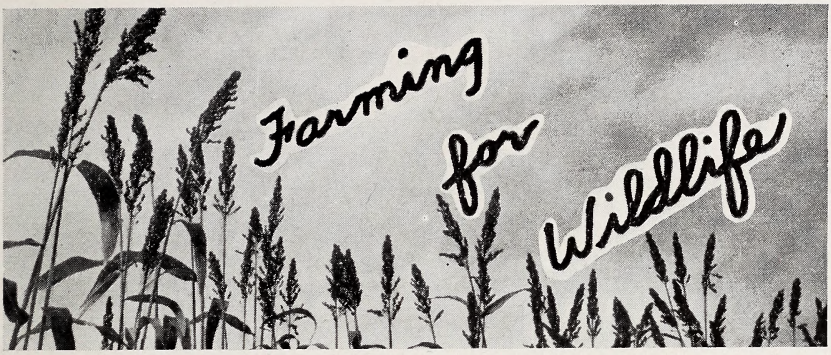
VOLUME II. OCTOBER, 1938. NUMBER 10

HUNTERS MUST CARRY IDENTIFICATION

Hunters who fail to carry positive identification regarding their residence in addition to hunting licenses may be subjected to considerable difficulty in the field this fall, according to John D. Chalk, Commissioner of Game and Inland Fisheries. Commissioner Chalk said that every attempt will be made during the coming hunting season to catch those individuals who have for years secured their hunting licenses under false pretenses. Every officer in the field has been instructed to check the licenses of all hunters carefully and to insist on positive identity before permitting those not possessing sufficient identification to proceed. North Carolina sportsmen do not go hunting or fishing without first equipping themselves with proper licenses, but all hunters and fishermen are not sportsmen; therefore, it is necessary for Game Protectors to check licenses closely.

Frauds, such as borrowing and lending hunting licenses and non-residents purchasing resident licenses through claiming fictitious North Carolina home addresses, if successful, deprive the Department of much needed revenue. Rigid steps must therefore be taken to prevent individuals not entitled to hunt because of failure to shoulder their share of the financial responsibility connected with administering wildlife resources from illegally killing game which in reality belongs to the law abiding sportsmen.

We sincerely hope that hunters will not resent the careful inspection of their hunting and fishing licenses by Game Protectors.



WILDLIFE IMPROVEMENTS DO NOT INTERFERE WITH THE REGULAR FARM PROGRAM

Just as the agricultural lands furnish the principal food supply for the people of the nation so also do they supply the principal source of food of much of the nation's upland game, and just as the farmer through his farming practices changes for better or worse the fertility of his soil so also by means of these same practices does he change for better or worse the food and cover conditions of the wildlife ranging his farmland. Thus it is quite apparent that any program which attempts to improve quail hunting must center around the farmer, however, not only because he controls the welfare of wildlife but also because he controls trespass of lands which constitute the greater portion of upland game hunting territory.

But the farmer has a definite stake in wildlife for it provides a check to insect infestations and in order to maintain wildlife in greater abundance he needs protection. Here then the sportsman comes to his assistance, for it is through his purchase of hunting licenses that this protection is made possible. Since the farmer and the sportsmen are dependent upon each other, active cooperation on both sides is absolutely essential if we hope to pass on to the next generation good hunting conditions. The farmer needs the right kind of hunter; a real sportsman, and the sportsmen need the right kind of farmer; a wildlife-conscious farmer.

Farmers, it is needless to say, are a busy group of people but when sufficiently interested in wildlife they seem to find time to pay some attention to its welfare. Among this group may be included Mr. T. F. Matthews, of Lemon Springs, Lee County, a Farm Game Cooperator whose wildlife work we here present in review with respect. Like a good many farmers, Mr. Mat-

thews finds little time or inclination to hunt but realizing that others get real enjoyment from working their dogs and tramping in the outdoors he appreciated their love for the sport and had no desire to close his property entirely to hunting. Consequently, his farm was set up as a Game Management Area which provides for a reasonable amount of hunting.

Last April one of the Field Biologists of the Division of Game and Inland Fisheries interviewed Mr. Matthews and explained the details of the Farm Game Program. Food and cover developments were discussed and the need for active cooperation on the part of the landowner in protection was stressed. Some few days later the Field Biologist returned and together with Mr. Matthews walked over the farm, and a plan of field improvements was worked out. Thus was the beginning of an individual wildlife project which already has made considerable progress. Mr. Matthews has accepted his responsibility in the conservation of wildlife and it is hoped the sportsmen will respect his efforts and cooperate in observing game regulations.

Since the game management districts are quite large, it was not until several months later that the Field Biologist was able to again visit this area. While passing through Lee County one day, he called on Mr. Matthews who cordially invited him to

Farm Game Cooperator T. F. Matthews is pictured here standing in a patch of cane and millet which he sowed for quail.

The thicket and small group of trees in the center of the large cultivated area shown above will provide cover from which quail may safely range the adjacent fields.

walk over the farm. The Biologist was quite favorably impressed, for practically all of the improvements outlined in the agreement for the first planting season were established and Mr. Matthews spoke enthusiastically of those to be made in the future. As they approached one of the cane and millet patches, a covey of about fifteen nearly grown quail rose and wheeled into the adjoining thicket.

Due to the fact that this farm was signed up rather late in the season, food patches were planted to annuals. Several of these patches were seeded in this year's tobacco beds where the liberal application of fertilizer resulted in excellent growth and abundant seed production. Mr. Matthews this year has sown four one-quarter-acre food patches on his 246-acre farm. Of these, two are in a mixture of cane, German millet and sorghum, and two are in a mixed variety of cowpeas.

In addition, a 10-foot strip of oats about 75 yards long was left unharvested adjacent to good cover. This strip, shown in the picture on page 6, has since grown up to a luxuriant stand of ragweed which is an important natural quail food.

Mr. Matthews' future wildlife program will vary slightly from the planting procedures followed during the past year. Small portions of the wildlife areas will be seeded to Sericea and Korean lespedezas which will add variety to the quail food supply. The practice of planting part of these in annuals such as cane, millet and cowpeas will be continued. Several unproductive field borders also will be sowed to Sericea lespedeza. Of special importance is a half acre of brush and trees which Mr. Matthews has agreed to allow undisturbed. This area, shown in the photograph on page 5, will provide much needed cover in the center of the large field in the vicinity of which a covey of quail may

A fine stand of ragweed has volunteered along this field border where grain was left unharvested last spring. Ragweed is an important quail food.

become permanently located. Not only are such thickets of importance to game but also to song and insect-eating birds. Many kinds of birds build their nests in bushes and during nesting seasons the young are most frequently fed, exclusively, soft bodied worms and insects, many of which are injurious to crops. Thus it may be seen that though a half acre is taken out of cultivation to form a thicket, birdlife attracted by this area can be expected to assist materially in reducing insect populations in adjacent fields and the practice may be justified on an economic basis.

A considerable amount of research has been concerned with the relation of hedgerows and thickets to insect populations and on the basis of these results information has been circulated in the past recommending the elimination of such brushy areas as an insect control measure. While these research studies may justify this practice, it seems that the part birdlife plays in controlling insects has been almost entirely overlooked by these investigations.

In addition to improving food and cover conditions for wildlife on his farm, Mr. Matthews is actively cooperating by reducing stray cats on his premises to a minimum and hunting dogs

will be confined during the breeding seasons of game. Important as these practices may be in saving game for sport, it is more important that the hunter also save game in the form of breeding surplus. Since Mr. Matthews' farm has been set up as a Game Management Area, hunting will be permitted only by special written permit which must be secured from the landowner.

A special game regulation now makes it a violation of the game laws to hunt on areas posted with State signs under the Farm Game Program without the printed permit which is supplied to the landowner by the Division of Game and Inland Fisheries. After the birds have been shot down to a point where further shooting would endanger the breeding surplus, Mr. Matthews has agreed to stop issuing permits. Thus when the hunting season ends, ample breeding stock will remain to repopulate the area the next year.

The Farm Game Program is essentially a cooperative undertaking and its success will depend upon the extent to which everyone will assist. We sincerely hope that sportsmen will make an effort to become acquainted with the farmers upon

(Continued on page 11)

This unproductive field border will be sowed in lespedeza next year as a permanent quail food patch.

Field Biologist J. W. Kistler points out the wildlife food value of important native plants before a group of 4-H Club members on the Sandhills Project near Hoffman.

4-H C
FOR WILD

CLUB MEMBERS FRO
TALKS ON CO

Once each year a select group of 4-H Club boys and girls, outstanding, youthful leaders in their communities, assemble for a week at the State Wildlife Conference, there to enjoy pleasant camp life and to see, listen and learn. Seventy-five club members who submitted the best records of individual 4-H Wildlife Conservation Projects, this year received for their efforts a week in camp at Indian Park, situated in the heart of the 60,000-acre Sandhills Project near Hoffman, N. C.

In spite of perspiring weather, the boys and girls maintained a live interest throughout the program which was under the supervision of L. R. Harrill, State 4-H Club leader. Specialists from the U. S. Soil Conservation Service, U. S. Biological Survey, N. C. Division of Game and Inland Fisheries, State Forestry Division and State and Federal Extension Services contributed talks, field trips and motion pictures. A bird walk and nature games were conducted by Charlotte Hilton Green, well known bird enthusiast from Raleigh. Though the program was indeed a full one, recreation and rest periods refreshed the youthful minds of the boys and girls, and conservation talks once again received renewed interest.

One of the important activities of the 4-H Clubs is the individual wildlife conservation project the purpose of which is: "To bring about a better understanding of the value of wildlife and to create a consciousness on the part of the farm boy and girl to the value of such a program in relation to farming, its economic value and its recreational advantages." These projects require about four months for their completion and include the planting of food patches for wildlife, farm surveys, identification and recognition of the value of songbirds, game and predatory animals, trees, plants and insects. To the 75 club members

EETS
NFERENCE

OF THE STATE HEAR
OF WILDLIFE

submitting the best records are awarded a week at the State Wildlife Conference all expenses except transportation paid. Awards are based on actual results accomplished as shown by records submitted, neatness and completeness of record books, other activities in 4-H Club work and a story on "My Contribution to a Wildlife Conservation Program."

Many and diverse are the activities of the 4-H Clubs and it is encouraging to know that as time goes on more and more attention is being directed toward the conservation of our natural resources. Someone once said that we grown-ups as a group, are too busy feathering our own nests or too occupied with personal indifference to spend much time in even thinking about the future. In such a fogged state of mind, there is a strong tendency to lose sight of our own individual responsibilities which gradually increase with the so-called progress of civilization. Particularly is this true of wildlife conservation and it is fortunate that we have 4-H Clubs and other youth organizations striving to instill in the minds of boys and girls the fact that a progressive society is composed of workers and not drones. Wildlife conservation is badly in need of active interest and it looks as though it will require a hypermic injection administered by the youth of the country to provide the stimulus to do the job right.

4-H Club members examine bird books and pictures exhibited by Charlotte Hilton Green in the recreation building at Indian Park.

PUBLIC ENEMY NUMBER ONE

Someone has rightly called the violator Public Enemy Number One. A few moments of reflection will convince the intelligent man that this title is deserved, for the violator earns the contempt that we now give to a gangster or a racketeer.

The violator is a thief. He steals property that belongs to all the people of the State. Because it is public property, everyone is obligated to protect it, but the violator betrays this trust. He therefore is as bad as a crooked politician. Of course, he may say he has a right to what he takes, but he hasn't a right to take it when no one else has and under conditions which give him every advantage. Such action can be characterized by only one word, and that word is cheating.

Besides taking something that doesn't belong to him and shirking his responsibility, he is also guilty of another crime. He is the man who drills holes in the boat while the other fellows are bailing out the water. He is the one who causes the leaks which others try vainly to stop.

A gangster wants what you have and will take it away from you by force if necessary. He doesn't care whether you have a right to it, whether it's yours or whether the law will uphold your claim. If he wants it, he takes it and makes you like it. He is a very disagreeable fellow and entirely unworthy of admiration. He is the big boy who takes away the engine or baseball bat from the little youngster and slaps down any protests. He is worse, because he is the one who sneaks the candy out of the other fellow's Christmas stocking.

With the opening of the fishing season, this Public Enemy Number One reappears. He is the game hog who catches his limit of trout, eats them and goes out for more the same day. He is the greedy fisherman who keeps every pike he catches, whether it is the legal size or not.

It's a funny thing about men of this type, but they are always loud-mouthed and swaggering and they always think they are smart. They boast about their exploits and seem to think they are clever, while they publicly brand themselves as cheap and greedy and and poor sportsmen. They frequently declare they are going to get their share and that future generations can worry about their own game. They are the ones you will always

find pushing and elbowing their way up to the head of the line when something is being given away free.

The fishing laws are reasonable. The bag limits and size limits are fair and generous. What point is there in a man violating them? What satisfaction is there for him in catching a lot of undersized fish? He can't display them and every other sportsman would laugh in scorn at the sight of such a string of little fish.

Good fishing is only possible where there is a continuous supply of fish planted and where these fish are allowed to come to maturity. It is possible only where a control is established, so that replacements can be made in proportion to depletion. If fish are taken out in unknown quantities by violators, a balance that will be self-sustaining can not be made. As a result the fish supply will steadily dwindle.

The violator works like a thief. He preys upon that which is unguarded because it appears to be protected. He takes that which does not belong to him any more than it belongs to anyone else. He robs a beautiful country, takes that which he often lets rot and is grieved and abusive when anyone catches him and seeks to make him pay the penalty.

The fishing laws are fair and generous and should be obeyed. Those who don't obey them are simply indicating they won't play fair, that they are going to cheat and that they want to introduce gangster methods into this beautiful forest land.—*Vilas County News Review.* (From Wisconsin Conservation Bulletin.)

FARMING FOR WILDLIFE

(Continued from page 7)

whose lands they hunt and promote a more friendly feeling. Let's put into practice some of those much talked about fine points which characterize sportsmanship. With everyone pulling in the same direction, we can progress much farther and faster and by so doing hand down to the next generation wildlife conditions at least a little better than they were when handed down to us.

NOTES and NEWS

FROM THE FIELD

"A neighbor living along beside Tom Jackson, a Holy Ghost Preacher, reported that he had killed a squirrel on August 25, 1938 right behind his house, for he had seen him dressing it. So I got a search warrant and went to his house and served it. He said that he had killed one and it was in his kitchen being cooked, that he had not violated the law, he felt like, neither man nor God, because God put these here on this earth for man. I asked him what worse could he do than to kill a mother squirrel from her little ones to perish to death. He stated that he could tell a male from a female. I asked him how. He said by their tail. He said a male had a bushy tail, a female had a thin tail. I told him that he had me beat for I could not tell the difference. So I went in the kitchen to get the squirrel but his wife had hid it in the flour barrel and it was still in the spider. I summoned him to trial and on his way in he stopped at his neighbor's house and called him out. He opened his knife and asked him didn't he think he had done something smart, that he was going to cut his damned throat. His neighbor told him just wait one minute until he came back, he'd get his gun. Mr. Jackson begged him not to kill him for he wasn't prepared to die. He told him that he wouldn't for he wasn't worth the powder and shot it would take to kill him.

"He submitted his case and said that he was the only witness that the State needed."

—SAM WILLIAMS
Special Game and Fish Protector

"While on patrol duty along Muddy Creek bottom in Forsyth County, I came across a black snake, four and one-half feet long, sunning on a log. My attention was particularly attracted by the "bigness" of the snake. I killed the snake with a stick and slit the body open, to find two young rabbits inside of it.

"This species of snake, commonly called chicken snake, is most destructive to game. Often they suck an entire nest of quail eggs.

"A week after killing the snake, I ran on another black snake about the same spot. I killed this one and cut it open, expecting to find other game but found he was not 'guilty'."

—J. E. SCOTT, Forsyth County
Game and Fish Protector

"During the past week I have checked fourteen licenses and bag limits and on these hunters I have only found four birds (Marsh hens). I don't know whether this is due to a shortage of birds or the tides. It takes a mighty high tide to find these birds. Some hunters say it is the tides while others say it is a shortage of birds."

—LEON THOMAS, Carteret County
Game and Fish Protector

BEARS IN SMOKIES ARE WELL FED

"Bears really are not dangerous but they are causing quite a problem in the Great Smoky Mountains National Park," commented Charles E. Ray, of Waynesville. "They are becoming so accustomed to people that they frequently interrupt picnickers and eat the lunches.

"At first these bears were content to overturn the trash containers at night after people had picnicked there. But recently they have found that they get more and better food if they appear on the scene before the picnics start.

"Not long ago a party of picnickers had their food all spread out on the ground, ready to eat, when two black bears waddled onto the scene. Of course, the picnickers made a rush for their cars, while the bears sat down and ate their fill of fried chicken, sandwiches, cake, jam and everything else in sight."

—NEWS AND OBSERVER

HEDGEROWS HARBOR BENEFICIAL INSECTS

Mr. M. C. Reeves, a Lee County Farm Game Program Cooperator, recently called to our attention an interesting observation regarding hedgerows. For several years Mr. Reeves has noticed that the old-fashioned red wasps seem to prefer building their large circular nests in small bushes along hedgerows. Also, Mr. Reeves has observed that the wasps are great enemies of tobacco worms in that they sting the worms to death and feed on them. In fact Mr. Reeves states that his tobacco fields bordered by hedgerows are usually kept fairly free of worms by the wasps which reduces considerably the labor involved in raising a tobacco crop.

Mr. Reeves' observations present another favorable viewpoint to having a moderate number of hedgerows on the farm located between cultivated fields, on property lines, and the edges of farm roads. Such hedgerows are valuable to farm game for nesting sites, escape cover, and food production, and if restricted to a reasonable width will occupy very little land which could be used for money crops.

GAME LAWS CHANGED

The following changes in the Game Laws have been made recently:

Quail—December 1-February 15.
Turkey—December 1-February 15.
Ruffed Grouse—December 1-January 15.
Rabbit—November 24-February 15.
Opossum, Raccoon (with gun or dogs only)—Oct. 1-Feb. 1.

EXTRACTS FROM THE NORTH CAROLINA GAME LAWS, SEASON 1938-39

LICENSE PROVISIONS AND FEES

All persons are required to procure a license to hunt or trap during the open season subject to rules and regulations prescribed by the Board of Conservation and Development. Exception: resident children under sixteen when parent or guardian has proper license or residents hunting or trapping on own or tenanted land.

Six months of actual residence in State immediately preceding application is necessary to qualify for a resident license.

Any person acting for hire as a hunting guide or receiving compensation as such is required to obtain, in addition to his hunting or trapping license, a guide's license. All guides are responsible for the behavior of their parties and are liable for cancellation of license and conviction for violation of Game Law.

Trappers are required to have a separate license to trap.

FEES

Non-Res. Hunting License	$15.25	Guide's License	$ 5.25
State " " "	2.10	Non-Res. Trappers License	25.25
County " " "	1.10	State " " "	3.25
Combination Hunting and Fishing License	3.10	County " " "	2.25

Licenses do not give the right to hunt or trap on posted land or waters.

OTHER FEES AND LICENSES

A propagation permit, fee $2.00, is required to propagate game birds or animals in captivity. A permit, fee $2.00, is required to hold legally possessed game birds and animals in captivity for exhibition or other purposes.

All who purchase or solicit to purchase furs, pelts, hides or skins of fur-bearing animals must first obtain a fur dealer's license. (Apply to Division of Game and Inland Fisheries or County Game Protector).

FEES

Non-Resident Fur Dealer's License	$100.00
Non-Resident Fur Dealer's Permit—Entitles licensee to buy furs only from State-wide licensed Fur dealers	1.00
State Resident Fur Dealer's License	25.00
State Resident Fur Dealer's Employee's License	25.00
County Resident Fur Dealer's License	10.00
County Resident Fur Dealer's Employee's License	10.00
County Resident Fur Dealer's Permit—Entitles licensee to buy furs at his established place of business in resident County	5.00

SEASONS AND BAG LIMITS

GAME	OPEN SEASON (inclusive)	Bag Limit Day	Bag Limit Season
Bear (1)	Oct. 1-Jan. 1	2	2
Deer (Male) (2)	Oct. 1-Jan. 1	1	3
Opossum, Raccoon (with gun or dogs only)	Oct. 1-Feb. 1	No limit	No limit
Opossum, Raccoon, Mink, Muskrat, (trapping) (3)	Nov. 1-Feb. 15	No limit	No limit
Otter	NO OPEN SEASON		
Quail	Dec. 1-Feb. 15	10	150
Turkey (4)	Dec. 1-Feb. 15	1	3
Ruffed Grouse	Dec. 1-Jan. 15	2	10
Rabbit	Nov. 24-Feb. 15	No limit	No limit
Squirrel (except Foxsquirrel) (5)	Oct. 1-Jan. 15	10	No limit
Fox Squirrel	NO OPEN SEASON		
Russian Boar	Oct. 20-Jan. 1		
Fox (6)	COUNTY REGULATIONS		
Wildcat, Weasel, Skunk	NO CLOSED SEASON		

Beaver, Buffalo, Elk, Doe Deer, Fox Squirrel, Otter, Pheasants, and all other protected wild birds and animals for which no open season is provided have no open season.

EXCEPTIONS IN SEASONS

(1) Bear: In Alleghany, Wilkes, Caldwell, Burke, Rutherford, and all counties west of these —Oct. 20-Jan. 1.

(2) Deer (Male): In Alleghany, Ashe, Avery, Cherokee, Clay, Macon, McDowell, Surry, Wilkes, Yadkin, and Yancey Counties—NO OPEN SEASON. In Sampson County—Nov. 1-Nov. 30.

(3) Trapping: Currituck and Dare Counties, Trapping—Dec. 1-Mar. 1. COUNTIES CLOSED TO TRAPPING: Unlawful to set steel traps in Bladen, Columbus, Craven, Graham, Greene, Haywood, Hoke, Pender, Robeson, Sampson, and Wilson, except on own premises for protection of domestic fowl or crops; and in all counties west of Surry, Wilkes, Alexander,

Catawba and Cleveland except that such steel traps may be set for muskrat and mink in the water and along streams in the cultivated portions along said streams.

(4) Turkey: In Alleghany, Ashe, Avery, Cherokee, Clay, Macon, Surry, Wilkes, and Yadkin—NO OPEN SEASON.

(5) Squirrel: In Alleghany, Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, Mitchell, Polk, Rutherford, Stokes, Surry, Swain, Transylvania, Watauga, Wilkes, and Yancey Counties—Sept. 15-Dec. 15.
Alamance, Caswell, Davidson, Chatham, Davie, Durham, Forsyth, Franklin, Granville, Guilford, Northampton, Orange, Person, Rockingham, Rowan, Vance and Warren Counties, split season—Sept. 1-Sept. 30 and Nov. 20-Jan. 31.
Ashe County—Sept. 1-Nov. 15.
McDowell County—Oct. 1-Dec. 15.

(6) Fox: County regulations. In those counties not having a local fox law, foxes may be taken with guns only during the open season on other game animals.
Gaston County: All game birds and animals (except quail, dove and migratory waterfowl) Thanksgiving Day to January 31. Quail—Dec. 15-Jan. 31. Doves and migratory waterfowl governed by Federal regulations.

Unlawful to possess more than 2 deer, 2 wild turkey, or 2 days' bag limit of other game birds or game animals at any time, or to possess any game bird or animal or parts thereof after 10 days next succeeding the close of such open season.

Unlawful to hunt or trap within 500 yards of high water during flood periods on any stream.

Unlawful to sell squirrel in Buncombe, Cherokee, Clay, Craven, Graham, Haywood, Henderson, Jackson, McDowell, Swain and Transylvania Counties and rabbits in Surry County.

Unprotected birds and animals are English Sparrows, Great-horned Owls, Coopers and Sharp-shinned hawks, Crows, Jays, Blackbirds, Starlings, and Buzzards, Wildcats, Weasels and Skunk. These cannot be killed by use of poison or dynamite except under permit.

Unlawful to hunt on Sunday.

Unlawful to hunt in Alexander, Davie, Gaston, and Iredell Counties when snow is on the ground.

It is hereby made unlawful to sell rabbits or possess them for the purpose of sale at any time of the year, except during the open shooting season thereon. (Nov. 20 to Feb. 15).

Unlawful for anyone, including landowner or tenant, to violate any regulation or agreement entered into with this Department under the Wildlife Management Cooperative Farm Game Agreement upon land which has been posted with the proper departmental cooperative agreement signs.

Possession Limits: Two day bag limit of Game birds and animals lawfully taken and possessed may be transported within the State during the open season and ten days next succeeding the close of such open season.

Non-resident licensee, under permit from Game Commissioner, may export, except by parcel post, not more than 2 male deer and 2 wild turkeys a season and not more than 2 days' limit of other game animals and birds.

1938-39 FEDERAL MIGRATORY WILD FOWL REGULATIONS FOR NORTH CAROLINA

		Bag Limit	Possession Limit
Dove	Sept. 1 to Sept. 30 Dec. 20 to Jan. 31	15	15
Woodcock	NO OPEN SEASON		
Duck*	Nov. 15 to Dec. 29	**10	**20
Geese*	Nov. 15 to Dec. 29	5	10
Jacksnipe, Wilson	Nov. 15 to Dec. 29	15	15
Coot	Nov. 15 to Dec. 29	25	25
Sora	Sept. 1 to Nov. 30	15	15
Rail, Marsh Hen	Sept. 1 to Nov. 30	15	15
Gallinule	Sept. 1 to Nov. 30	15	15

*No open season on Wood duck, Brant, Ross's Goose, Snow Goose, and Swan.

**Daily bag limit on Canvasback, Redhead, Bufflehead, and Ruddy Duck not over three in the aggregate.

Possession limit not over six in the aggregate.

RESTRICTIONS

Illegal to hunt waterfowl or doves on or over baited areas.

Illegal to use live decoys or to drive, rally or chase with airplane, power boat, sail boat or other floating device.

Illegal to take migratory game birds from or by aid of an automobile, airplane, sinkbox, battery, power boat, sail boat, any boat under sail, any floating craft or device of any kind towed by power boat or sail power.

Illegal to shoot waterfowl before 7 a. m. or after 4 p. m.

Illegal to use shotgun larger than 10 Ga. or an automatic or hand-operated repeating shotgun capable of holding more than three shells, the magazine of which has not been cut off, or plugged with 1-piece metal or wooden filler incapable of removal through the loading end thereof.

OVEMBER

1938

North Carolina

WILDLIFE CONSERVATION

North Carolina Wildlife Conservation

N. C. Department of Conservation and Development
R. Bruce Etheridge, Director

Division of Game and Inland Fisheries
John D. Chalk, Commissioner

Published monthly by the Division of Game and Inland Fisheries with the cooperation of the Zoology Department, North Carolina State College of Agriculture and Engineering, Raleigh, N. C.

Permission to reprint may be obtained provided proper credit is given.

VOLUME II. NOVEMBER, 1938 NUMBER 11

THE BOYS YOU LEFT BEHIND

With the coming of chilly weather many a yarn will be spun around open campfires as coon and 'possum hunters take to the woods to listen to their favorite dogs trailing. For some unknown reason the warmth of an open fire on a frosty night seems to encourage thoughtful conversation and subjects for discussion range from world problems to the respective merits of 'possum hounds. But we have frequently wondered how often such discussions center around the preservation of their sport for the pleading youngsters, who yet too young to stay up late, are left behind in sorrow.

Coons, 'possum and other wildlife like human beings, must have shelter, they need homes just as much as you and I. But when you cut down a den tree you destroy not just an ordinary tree which may or may not have commercial value, but the home of some furbearer and with it's destruction your cherished sport is endangered. Woodland areas can support only as much wildlife as there is shelter for it.

The next time you sit around a warming fire listening to a good race, think of the little boys that are left behind. They anxiously wait as the years pass for the day when they too can go 'coon hunting. Too young and, therefore, helpless they must depend on you. Don't disappoint them—save those den trees.

CONSERVATION EDUCATION

●

A Much Neglected But Very Important Problem

How often do we hear seemingly intelligent people say that there is no need for us to worry about our future wildlife supply! Their claim is that it has taken care of itself in the past and that it will care for itself in the future. How erroneous this belief is! These people speak without reflection for they do not realize it is very difficult for wild creatures to adapt themselves to our modern civilization. With intensive methods of agriculture destroying game habitats, and modern roads carrying hunters with up-to-date guns and well trained dogs to the once inaccessible coverts, it is a wonder that the wildlife has withstood the onslaught as well as it has. But its ability to survive under these adverse conditions is lessening each year, and if wildlife is to be provided for the younger generation that is soon to take its place at the helm, the public must be enlightened through conservation education.

To educate the 120,000,000 people in the United States is no easy task. Our organs at present for this type of education are limited. The newspaper provides one outlet for conservation facts. When it does publish information, however, it appears for the most part in a very inconspicuous place with very little attention being given it. Facts, for instance, regarding the hunting of whales are given as pure news items and do not in any way acquaint us with the conservation needs of the species. The article may describe the efficient methods of hunting our largest mammal, the whale, by using radio and aeroplanes to locate the huge animal and how they are disposed of in wholesale lots for commercial purposes, but generally no mention is made of the fact that continuance of these methods of modernized slaughter may soon lead to the destruction of certain species of whales. Indifferently the newspapers mention the extensive slaughter of seals on the coast of California to produce much of our canned dog food. Facts as these should be placed before the public in such a manner as to acquaint them with the hazards of extinction of wildlife and perhaps suggest in their news items possible recommendations of students of the subject on how to alleviate such conditions.

Sporting magazines present a source of education in this direction. Columns are generally devoted to conservation topics.

In catering to the sportsman and advertiser, however, they are obliged to deal only with those species considered as game. Important as these may be they far from cover the field of wildlife as the biologist interprets the word. In their publications species other than those taken by rod and gun are neglected.

The Federal Government by means of its Biological Survey and Soil Conservation Service has made available to certain people an abundance of material dealing with the field of conservation. Its information is of a specific nature, however, and does not present the broad general aspects of wildlife to the public at large.

Most State Conservation Departments have set up education programs as extensive as their limited budgets will permit with the objective of first educating hunters and landowners to the need for efficient game law enforcement and game restoration. While their sphere of influence extends primarily to furbearers and game, protection of all wildlife is their responsibility.

Special committees and various organizations assist admirably in the dissemination of conservation facts. Due to the lack of funds, however, their influence is limited and their publications cannot be distributed widely enough to be of benefit to everyone. Furthermore, only the interested parties would read them.

What we need is a method of presenting unbiased facts concerning our national wildlife resources to the public at large. By

Group discussions on conservation topics held in the out-of-doors make 4-H Club members wildlife conscious.

Interest in wildlife is stimulated through bird hikes at 4-H Club camps.

wildlife resources we mean all animals whether of value as game species or not. The only method for successfully presenting this education is through our school rooms. Conservation education should begin with our youngest generation in the class room. At an early age boys and girls should be made to realize that the wildlife resources of our country are a valuable asset from many viewpoints. The fact should be stressed that it is an important source economically for food and clothing, that the hunting and fishing industry in itself gives employment to many people and that it supplies a vital recreational and aesthetic value to thousands of out-of-door enthusiasts. Yellowstone National Park would be nothing more than a ghost city if it's bear, elk, moose and birds were removed.

We must look to the youth of the country. In them we must instill the desire to protect and preserve the wildlife. Already within our bounds eight species of birds and eleven kinds of mammals have become extinct. Today several other birds and mammals are on the way to extinction. Should we sit by complacently and allow this to happen in a land that was so amply blessed with wild creatures? The answer is simple and emphatic. No! How should we proceed the question is asked? The answer lies in widespread education. It should fall to the task of the teachers of the youth of today to educate their pupils to the value, needs and protection of our wildlife.

(Continued on Page 11)

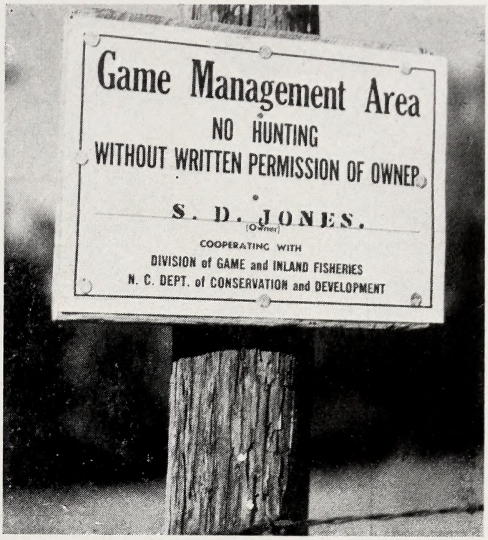
NEW LAW FOR FARM GAME AREAS EFFECTIVE

OUR ATTENTION has been called to the effectiveness of the special regulation for Farm Game areas passed by the Board of Conservation and Development. A Game Management Area being developed by Cooperator M. L. Parker of northern Richmond County is especially suited as a wild turkey range. Mr. Parker and other landowners in this locality have in the past been instrumental in protecting this fine game bird in order that this turkey range might become more fully stocked. Investigating out-of-season gun shots on his property, Mr. Parker called the County Game Protector. Cooperating with Mr. Parker, Mr. Walter Bray, Richmond County Game Protector, and Mr. Max Capel, Montgomery County Game Protector, secured evidence against two men that resulted in their conviction. A road sentence of sixty days was imposed upon each for killing wild turkey out-of-season and hunting on a Game Management Area without a written permit from the landowner.

Mr. Parker found one of the men leaving his premises with something in a "tow" sack which felt like a fowl. When located the next day by investigating Protectors Capel and Bray, the negro insisted that what Mr. Parker felt was a water jug and he produced the jug from the sack he was carrying as evidence of his innocence. After further questioning as to the shooting, both men said they had shot at a snake. The Game Protectors pointed out that there was no indication of a shotgun charge striking

Respect for State posters will develop with better law enforcement.

the ground but that the surrounding vegetation showed clearly that a shot was fired upward into a tree. Both men finally admitted that they had killed and hid the turkey. It was later recovered and donated to a hospital.



Without the splendid cooperation of Mr. Parker and the diligent work on the part of Game Protectors Max Capel and Walter Bray, these violators would never have been apprehended. The striking thing about this case is not so much the fact that two men were convicted, but the fact that landowner, game protectors and the court all worked together for a common purpose, the restoration and preservation of that noble game bird, the wild turkey. These birds must have close protection if results are to be expected, and while no one derives a great deal of pleasure out of prosecuting violators, penalties must be severe enough to discourage those who would take advantage of the law-abiding hunter. All too frequently penalties for game law violations are so light that habitual out-of-season hunters find the risk of a ten dollar bill a good bet and illegal hunting is encouraged rather than discouraged.

In many cases it is virtually impossible to secure convicting evidence against game law violators without the cooperation of landowners in reporting violations and then appearing in court as witnesses. The Division of Game and Inland Fisheries is going to no little expense in its program to restock many depleted ranges capable of carrying upland game birds. Mr. Landowner and Sportsmen, these areas are being restocked for your future sport. Are we to allow a few hunters of the type convicted in this case to destroy this constructive work by hunting without licenses, hunting before the season opens, and hunting with no

(Continued on Page 11)

SPORTSMANSHIP THEN, NOW, AND IN THE FUTURE

EVERY MAN thinks he's a sportsman! Undoubtedly, this is quite true. The question which should be more seriously pondered, perhaps, is what would be our rating as a sportsman? Various kinds of woolen goods are designated as 100% wool, 50% wool and so on, and seemingly it might be possible to measure the sportsmanship of sportsmen on the same percentage basis.

If this could be done, who would want the job of indicating the standards of a 100% sportsman and a zero sportsman? The purpose of these lines is not to set up these standards for judging sportsmanship, but rather to suggest that possibly the requirements for sportsmanship have become more "steep" in recent years and undoubtedly will be raised even higher in the future.

At a recent meeting in Raleigh at which various sportsmen spoke with regard to changing hunting seasons, one speaker stated that he positively knew of three young turkeys having been killed by squirrel hunters already. Probably, everyone would admit that the person or persons who killed the turkeys would not measure up as 100% sportsmen, but how about the person who knows about the game law violations and makes no effort to convict the violator according to law?

History indicates that ten years ago or even five years ago, very few people ever thought of "turning in" a game law violator unless it was for spite. Since assistance in apprehension and conviction of game law violators was not a part of the Sportsman's Creed during former years this factor could not be taken into consideration in determining the sportsmanship rating of a man. Therefore, in the past a man might have lived next door to a game law cheater and watched him steal, and still be in the 100% sportsman class.

Today, things have changed. More and more, top notch sportsmen are assisting in the drive to outlaw the violator. This is evident from the increasing number of case histories which show that landowners, or other hunters have given all necessary evidence to secure convictions in game law violation cases. And instead of being looked down upon, these individuals are commanding the respect of their neighbors.

Some 80 sportsmen at an Izaak Walton League meeting in Winston-Salem, N. C. recently took an oath to the effect that

they would help apprehend and convict anyone who violated the game and fish laws in their presence. In other words, these men are making the cooperation in prevention of game and fish law cheating a part of their duty as sportsmen, and in figuring their rating, they should be given a much higher score because of this activity. The hunters who knowingly allow game law violations to continue cannot now class themselves as 100% sportsmen. Perhaps a 50% rating would be more suitable provided other rules of sportsmanship are followed.

Ten years from now or even within five years, if the present rate of improvement continues in this cooperative activity, the rating of hunters who ignore hunting and fishing violations will be closer to zero than 50%. To continue as sportsmen, and to have anything in the way of wild game to be sportsmen for, it will be necessary for hunters and others to take on this new activity.

Mr. M. L. Parker, a landowner and sportsman in Richmond County who is also an active cooperator in the Farm Game Program, reported two men for killing young wild turkeys on his farm. Mr. Parker immediately set out to secure their arrest. The case came to court, the defendants were found guilty and heavy fines followed.

In figuring the sportsmanship rating of Mr. Parker, not only should his law enforcement activities count, but also his activity in providing food and cover on areas set aside especially for wildlife should place him high in the sportsmanship ranks. Also, he is helping to bring back the monarch of American Game Birds—the wild turkey.

Cooperative law enforcement work also helps in another way. The courts and other agencies which mete out justice will give more consideration to game and fish law cases when it is realized that the people are actively interested in sound conservation and management of our wildlife resources.

The Prayer of A True Sportsman

ALL TOO FREQUENTLY "Sportmen's Creeds" so emphasize minor details such as the control of predators that the important principles underlying sound wildlife conservation become subdued and the hunter feels that his greatest responsibility lies in fulfilling the slogan, *"I'll do my best to kill a pest."*

In a back issue of *Tennessee Wildlife* appeared "The Prayer of a True Sportsman" which expresses perhaps the greatest responsibility of the true sportsman: respect for game regulations. It is used by Roy C. Nelson, of Elizabethton, Tennessee, on "Roy's Radio Column of the Air" over Station WOPI of Bristol. The prayer reads as follows:

DEAR LORD:

Make me appreciate deeply the wild life of my section, which you have so graciously placed here for my enjoyment and pleasure, as well as that of my neighbor.

Make me obey the Laws of God and man with reference to our game and fish.

Teach me to so act that when I meet and talk with my Game Warden, that I may look him full in the eye and say "I have protected the game of my County. I have reported to you all law violators with reference to the game and fish, and I have not acted unlawfully. I have not violated the game and fish laws of my State."

And when comes the long winter evenings, and I rest in my humble cottage by the side of a friendly fire, and I think of the happy hunting days of the past I may have no regrets, I can say that I have faithfully and honestly kept the Game Laws of the State of Tennessee.

Above all I have been a true Sportsman.

AMEN.

CONSERVATION EDUCATION

(Continued from Page 5)

The 4-H Clubs, Future Farmers of America, Boy Scouts and Girl Scouts all have done a great deal to make the youth of the country wildlife conscious. But even these organizations combined do not reach enough individuals. A well organized conservation program must be developed to fit in with the general school teaching schedule. Only in this way can the greatest number of boys and girls be reached.

NEW LAW FOR FARM GAME AREAS EFFECTIVE

(Continued from Page 7)

regard for restricted areas where quail and turkey are given a chance to breed and increase their kind? It is surprising how quickly the so-called game hog mends his ways when he learns that the true conservationists and sportsmen in a community take it upon themselves and act to help put an end to his unsportsmanlike practices.

In many communities throughout the State a few prosecutions on the part of landowners together with the wholehearted cooperation of the sportsmen, the courts and the Game Protectors have broken up the activities of many persistent game violators. The action of Mr. Parker is to be highly commended and this case will also show the high spirit of cooperation between game protectors of adjoining counties. The writer being familiar with this particular case knows of the untiring efforts, night and day, of these Protectors to bring these game violators to task. It is sincerely hoped that more landowners will cooperate with the Game Protectors by not only reporting, but by appearing against game law violators and helping to get a conviction.

NOTES and NEWS

IS THIS CONSERVATION?

There is a saying that a poor excuse is better than no excuse, but not in this farmer's opinion. A neighbor had been training his 'coon dogs on the property of this landowner during the first season that the dogs were old enough to hunt, and on walking over his property, he found five dead 'coons in the woods. He had occasion to question the hunter about the matter and asked him why he shot the 'coons and left them. The hunter replied that he had to do that in order to train the dogs properly and that the 'coons were no good at that time of the year. He just shot them out to give the dogs a chance to smell them and see that they were dead before moving to another trail!

"BULLS-EYE" COSTS PROUD HUNTER $25.00

"In an eastern North Carolina county a Game Protector had arrested a culprit for violation of the doe deer law, and had brought him into court. During the course of questioning the well known old alibi was used that the hunter couldn't tell at such a long distance whether or not the deer had horns. The Judge asked how far away the deer had been killed and the hunter proudly exclaimed that it had been stepped at 160 yds. The Judge leaned back comfortably to pronounce his verdict—"Twenty-five dollars fine and cost of court. Anybody that can see well enough to shoot a deer through the heart at that distance could have easily seen whether or not it had any horns."

Mr. D. G. Stockman, Manager of the W. O. Bennett farm near Wadesboro, N. C. watched six quail hatch successfully during June 15 and July 15, 1938. Three of the six nests were within a radius of fifty yards. Mr. Stockman relates that in crossing an old field he accidently stepped on a nesting bird, breaking one egg and pulling a few feathers out of the incubating bird. He took out the broken egg, rearranged the nest and states that the bird came back and in the next few days the eggs were hatched.

SMITHFIELD MEN FINED FOR FISH LAW VIOLATIONS

Two Smithfield men charged with violation of the fishing laws found their appeal from a magistrate's court costly when they were fined $25 and $50 respectively and costs after conviction on the charge in Johnston Superior court.

W. A. Stallings and John J. Davis were indicted in May for shadding during the spawning season which is prohibited

under state game regulations. Appearing before Magistrate W. F. Grimes they were fined with the costs which amounted to $9.75 each. Dissatisfied, they appealed to a higher court.

The case was called before Judge Clawson Williams. Davis pleaded guilty and Stallings was found guilty by a jury.

"It appears that you do not realize the serious nature of your offense," Judge Williams told the defendants in passing judgment.

"It matters not whether you dislike or like the laws of North Carolina. As long as a law remains a law it is your duty to abide by it and the fishing laws were enacted to protect the people of North Carolina just as any other law."

Davis, who admitted he had caught about 15 shad during the closed season, received the heavier fine of $50. Stallings, who admitted catching a single fish, was fined $25.

—SMITHFIELD HERALD

The last passenger pigeon died in the Cincinnati Zoological Gardens September 1, 1914. There are a few people in North Carolina who can remember when those birds were present in much greater numbers in this State than robins in the robin roosts reported here last spring. Mr. Frank Da Vault of Morganton, N. C. says that the last flight of passenger pigeons that came through his community (Burke County) was in the fall of 1881. He states that he does not remember ever finding a nest or seeing any birds during nesting season, but "They would appear as fairly large clouds in the fall, and when they lit they would cover the trees on several acres of land." The flight in 1881 was small and only "covered one small post oak tree."

DO YOU HAVE YOUR HUNTING AND FISHING LICENSE?

REMEMBER—Both the button and identification slip accompanying it must be on your person at all times while you are hunting or fishing.

The U. S. Bureau of Biological Survey has now under its administration around 12,000,000 acres in wildlife reservations in the United States and Alaska.

HOW TO IDENTIFY HAWKS BY WING-SPREAD DIMENSIONS*

NOTE: The following key to the identification of hawks by wingspread measurements is reprinted through the courtesy of Mr. Richard H. Pough of the National Association of Audubon Societies.

LESS THAN 27 INCHES:

Sparrow Hawk (20″-25″). Average male 21″; female 24″.
Wings: Long and pointed.
Color: Reddish-brown (wings of male are blue-gray).

Sharp-shinned Hawk (20″-27″). Average male 22″; female 26″.
Wings: Short and rounded at ends.
Tail: Long, **square end.**
Color: Dull brown or blue-gray, streaked or barred below.

Pigeon Hawk (23½″-26½″). Average 25″
Wings: Long and pointed.
Color: Dark slate above, heavily streaked below.

BETWEEN 27 AND 38 INCHES:

Cooper's Hawk (27″-36″). Average male 29″; female 33″.
Wings: Short and rounded at ends.
Tail: Long, **round end.**
Color: Dull brown or blue-gray, streaked or barred below.

Broad-winged Hawk (32″-39″). Average 36″.
Wings: Broad, and fairly long.
Tail: Short, wide-spreading, **wide white bands.**
Color: Dull gray-brown.

Red-Shouldered Hawk, Male (33″-44″). Average 40″.
(Most individuals will come in next group.)

BETWEEN 38 AND 48 INCHES:

Duck Hawk (38″-46″). Average male 40″; female 45″.
Wings: Long and pointed.
Color: Dark blackish slate or brown (wide black mustaches).

Prairie Falcon (40″-42″). Average 41″.
Wings: Long and pointed.
Color: Gray-brown or **clay color.**

---

*Measured from wing-tip to wing-tip, with wings fully extended. Among most hawks, the female is often considerably larger than the male. General color given is for back and wings, underparts are usually white, variously marked.

Goshawk (40″-47″). Average male 42″; female 46″.
Wings: Short, rounded ends.
Tail: Long.
Color: Dark blue slate or dull brown.

Red-shouldered Hawk (33″-48″). Average male 40″; female 46″.
Wings: Broad and fairly long.
Tail: Short, wide-spreading, narrow white bands.
Color: Dark brown, often **slightly reddish.**

Marsh Hawk (40″-54″). Average male 43″; female 50″.
Wings: Fairly long.
Tail: Long (**Rump: white** just above tail).
Color: Male, gray; female, brown.

BETWEEN 48 AND 58 INCHES:

Marsh Hawks, Female 43½″-54″). Average 50″.
(Only brown females will come in this group).

Red-tailed Hawk (46″-58″). Average male 48″; female 53″.
Wings: Broad and heavy.
Tail: Short, wide-spreading.
Color: Dark brown, **dark band on belly.**

American Rough-leg (48″-56″). Average male 50″; female 54″.
Wings: Broad.
Tail: Medium length; **white at base.**
Color: Dark brown, lighter on head.

Swainson's Hawk (48″-57″). Average male 49″; female 52″.
Wings: Moderately broad.
Tail: Short and gray.
Color: Dark gray-brown, broad brown band on upper chest.

OVER 58 INCHES:

Osprey, or Fish Hawk (58″-72″). Average 67″.
Wings: Long.
Color: Dark brown, pure white below.

Bald or American Eagle (72″-90″). Average male 81″; female 86″.
Color: Brown (old birds have white head and tail).
Legs: **Yellow and scaled.**

Golden Eagle (75″-92″). Average male 81″; female 87″.
Color: Brown.
Legs: **Feathered down to foot.**

DECEMBER 1938

North Carolina

WILDLIFE CONSERVATION

NORTH CAROLINA WILDLIFE CONSERVATION

N. C. DEPARTMENT OF CONSERVATION AND DEVELOPMENT
R. BRUCE ETHERIDGE, DIRECTOR

DIVISION OF GAME AND INLAND FISHERIES
JOHN D. CHALK, COMMISSIONER

PUBLISHED MONTHLY BY THE DIVISION OF GAME AND INLAND FISHERIES WITH THE COOPERATION OF THE ZOOLOGY DEPARTMENT, NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, RALEIGH, N. C.

PERMISSION TO REPRINT MAY BE OBTAINED PROVIDED PROPER CREDIT IS GIVEN.

VOLUME II. DECEMBER, 1938 NUMBER 12

SAVE HUNTING PERMITS

SINCE ONLY a few Game Management Areas were set up in time for the hunting season last year, the number of hunting permits issued was small. However, now that about 200 regulated hunting demonstrations are in operation, we wish to remind coöperators to request all persons hunting on their lands to return hunting permits at the end of the day's hunt. A survey of all Farm Game Areas will be made at the close of this season in an effort to determine what changes, if any, might be made to make the Farm Game Program more effective. An important part of this survey will be the compilation of data secured from hunting permits.

As has been mentioned in previous issues of *North Carolina Wildlife Conservation*, all Game Management Areas posted with State signs receive protection through a special regulation passed by the Board of Conservation and Development last spring.

The Division of Game and Inland Fisheries recognizes the landowner as custodian of game ranging his premises and places in his charge the control of hunting thereon. Now that the quail and turkey hunting seasons are in full swing, coöperators are reminded that effective protection of Farm Game Areas will be realized only with their coöperation. When illegal hunting is taking place, secure as much information as possible and report it to your County Game Protector.

SQUIRRELS AND NEST BOXES

WHETHER they are found panhandling peanuts in a city square or stealing corn out of a country corn crib, gray squirrels are most welcome visitors in the vicinity of human habitation despite the fact that they may at times commit depredations on crops. Probably no other wild, four-footed creature enjoys as widespread a public affection as do these rodents, for they provide not only sport in hunting, but by their presence command attention in public parks. A city park without a squirrel would indeed be as empty as a house without furnishings.

Though squirrels become timid and shy in the woods where they are hunted, they quickly respond to protection and take up housekeeping without fear of mankind around wooded homesites. By providing food and nest boxes, Henry and Lewis Jones have attracted a surprising number of squirrels to a few acres of woodland about their farm buildings in Granville County a few miles from Oxford. One evening, over fifty apparently different individuals were counted as they searched for hickory nuts.

Small boxes nailed to trees and filled with hickory nuts are lunch counters to gray squirrels on the Jones farm in Granville County.

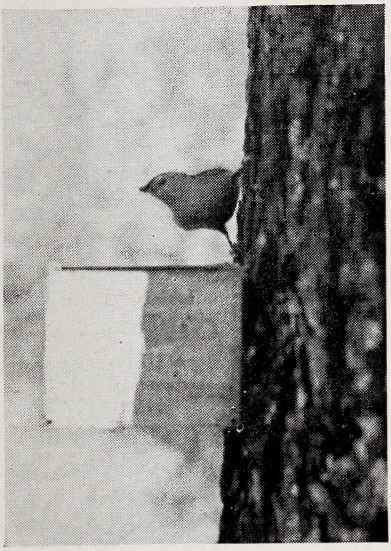
That wildlife is usually found in greatest abundance where proper food and shelter is available, is common knowledge among observant hunters. With this

thought in mind, the Jones brothers collected a number of small kegs, nailed boards across the lower halves of the openings and fastened them securely in practically every tree in the vicinity of their farm buildings. These were placed at various heights ranging from fifteen to twenty feet from the ground. In a few places, hollow logs were cut into about two-foot sections and also placed in trees as nest boxes. One end was completely closed and the lower half of the entrance boarded. In a remarkably short time, we are told, squirrels were seen carrying leaves into the kegs, and it was not long before all were occupied.

After ample nesting places were provided, cigar boxes were nailed to trees about four or five feet from the ground, and lard pails were hung on several fence posts. These were then filled during the winter with corn and hickory nuts gathered in the fall. Thus with just a little effort the Jones brothers succeeded in bringing to their door-step an abundance of wildlife from which they derive continuous pleasure. Not only do squirrels gather about the feeding boxes, but also several kinds of songbirds, especially white breasted nuthatches.

Since squirrels are so abundant about the Jones farmyard, the question has been raised as to their effect on nesting songbirds. While sufficient time was not available to make a careful study, several observations were made which may be of interest. Nine nests were located, four of which were robin's and the others of mockingbird, tufted titmouse, mourning dove, Carolina wren, and a sparrow. In two of the four robins' nests, the young hatched successfully, and the other two contained four well feathered young and three eggs, respectively, when last observed. One of the nests from which the

Small kegs such as pictured at the left furnish nesting places for gray squirrels.



Nuthatches also fed at feeding stations provided for squirrels.

young succeeded in hatching was located in a tree adjacent to the back porch of the Jones dwelling house where squirrels were frequently seen. The Carolina wren built her nest in a rusty bucket hanging in a tool house and there successfully reared her young. The mourning dove and mockingbird also succeeded in bringing off broods. Only one of the nine nests located was destroyed. This was the nest of a sparrow with three eggs located in a hole near the top of a fence post. When last visited, the eggs had disappeared and the nest was left undisturbed with no trace of eggshells.

In a tree overhanging the back porch a titmouse was seen carrying nesting material in a hole in a hollow limb. The hole was small enough, however, to completely exclude the possibility of squirrels entering the nesting cavity.

One policy must be adhered to before squirrels or other forms of wildlife can be expected to remain around farm buildings. That is, house cats must be absolutely controlled. Young squirrels confined in nest boxes once located by a house cat are easy prey and considerable destruction to young may result.

It is interesting to note, in conclusion, that the Jones brothers report an outflow of squirrels from the home grounds to an extensive body of connecting woodland. Thus we have another example of the value of a sanctuary where wildlife is protected, and food and shelter is provided. After the population reaches a certain density the surplus moves out to restock surrounding territory.

SPORTSMANSHIP AND HUNTING SEASONS

WITHIN THE past few months many hunters, and especially quail hunters, have suggested that the open season on all kinds of game begin on the same day each year. On the surface, this idea seems plausible. If this could be the case and still permit the maximum number of people to get the most benefit from game animals, State Game Departments would have a much simpler task than is actually the case.

Most of the discussions have centered around rabbit and quail hunting seasons and therefore this article will be primarily concerned with the situation as concerns these two game animals.

One thing which tends to make it necessary and undesirable to have quail and rabbit seasons open at the same time is the fact that at present a much larger portion of the State is suitable for rabbits than is suitable for quail. Present farming practices in many cases have taken away the proper abundance and distribution of the many kinds of food which are so necessary for the bobwhite quail to successfully increase its numbers. These same practices have probably tended to reduce rabbit populations too, but a cottontail or a family of them can establish headquarters and live within a much smaller area than is present for a covey of quail. Even in closely cultivated areas, rabbits generally find sufficient thicket and weed covered areas to maintain their supply. Quail require a greater variety of foods, and more extensive and specialized types of cover. They cannot feed after dark.

Rabbits are more able to increase their numbers because of the fact that they probably have more than one litter of young per year. The young are born alive and remain in the nest until they are pretty well able to take care of themselves. Before quail can approach maturity they must escape innumerable dangers during the egg laying and incubation period. After hatching, they are again rather helpless, and it is fairly easy for certain natural enemies, stray cats and cur dogs to wipe out the whole covey. The factors which tend to reduce their numbers are more numerous and more damaging than is the case with rabbits.

Not only is it possible, but all information indicates that the State as a whole, produces many more rabbits each year than quail. This brings up another point. Very infrequently are

persons contacted who ask to have something done which will permit rabbits to increase. The great majority of landowners who have been consulted relative to the Farm Game Program have stated that rabbits will do considerable damage to crops if they become too numerous, and actually one of the problems of the Division of Game and Inland Fisheries, is to regulate the abundance of these animals so that their harmful activities will not become too prevalent. Since both the rabbit and quail secure much of their food from agricultural plants, it seems necessary that the farmers or landowners be given consideration. If rabbits are allowed to increase to the extent that they will become harmful on farm lands, then it will be only natural for the farmers to make their lands less suitable for these animals, and in doing so, they are almost certain to make conditions less suitable for quail.

There are sections in the State right now where farmers are intentionally destroying game habitats on their farms because of the unsportsman-like activities of hunters. And unless the landowners are given consideration when the regulations and laws pertaining to game and hunting are concerned, the hunters will not be able to look forward to successful hunting ventures in the future.

One method of regulating the numbers of cottontail rabbits is through shortening or lengthening the hunting season. And taking the State as a whole, it is very evident that the present rabbit population can stand a much longer hunting season than can the quail supply. It is true that there are many more rabbit hunters in the State than quail hunters but the majority of rabbit hunters are content to get one, two, or three rabbits, while the quail hunters delight in securing the limit.

It would be unfair to the large number of rabbit hunters, as well as to many farmers, to shorten the rabbit season just because the quail supply will not stand the same amount of hunting. It would not be making the best use of our wildlife resources to permit this to happen.

The argument advanced by the quail hunters is that the rabbit hunters will shoot a good portion of the quail crop before the quail hunters are permitted to take the field. Of course, there will always be a limited number of individuals who will try to "beat" the game laws and because of this, it will always be neces-

(Continued on Page 11)

HUNTERS MUST COOPERATE WITH FARMERS

IN AN ADDRESS before the fifth annual New York State Wildlife Conference, J. Paul Miller, of the U. S. Biological Survey, placed squarely upon the shoulders of sportsmen most of the blame for shortcomings of farmer-sportsmen game conservation programs.

Great hope for better hunting through coöperation between farmers and sportsmen, however, was expressed by a speaker, who recently completed a two-year field study of wildlife management as a supplementary farm enterprise.

The future of upland-game hunting in this country will depend upon the success or failure of farmer-sportsmen programs, he said. The farmer produces most of the game and provides places for hunting. More than 60 percent of the potentially "huntable" area in New York, for instance, is devoted primarily to agricultural uses.

Quail, pheasants, and Hungarian partridges are entirely dependent upon farm-lands for their existence, Miller stated. The cottontail rabbit and ruffed grouse thrive best on certain agricultural lands. More than 80 percent of the game taken in New York is produced on farm lands.

Sportsmen ask farmers to provide a place for game to live, food for game, and most important, access to the land for hunting, but privileges are often abused. As a result many farmers post their lands against trespass.

"The one feature which appeals most to farmers in all coöperative programs is the promise of protection to property through restricted and controlled hunting," Miller stated. "That is little to ask. From my own experience, I have found it considerably more pleasurable to hunt when I can feel I am an invited guest, even when the bag permitted by an association is less than that allowed by State law."

Sportsmen can help by establishing small refuges or seed stock areas, the speaker pointed out. Even with ample food and cover, game will not increase unless sufficient protection is furnished to prevent killing off the increase, he concluded.

Two recent publications touching on this subject are available. They are *Farmers' Bulletin* 1719, Improving the Farm Environment for Wildlife, and *Farmers' Bulletin* 1759, Game Management on the Farm. Both can be obtained free from the U. S. Department of Agriculture, Washington, D. C.

A LETTER FROM A 4-H CLUB MEMBER

IN COÖPERATION with leading citizens of Guilford County, the U. S. Soil Conservation Service this year conducted a wildlife contest for boys and girls. The following letter from a 4-H Club member in Jamestown, N. C., was transmitted to us by one of our Field Biologists who assisted in judging wildlife improvements made by the young contestants:

DEAR SIRS:

My story is, "What I have actually done to improve wildlife conditions on our farm."

I have sowed strips of small grain all over our place. There is at least an acre of it in all. I have sowed lespedeza along old fence rows and along the edge of the woods. I have sowed very much peas and cane which I intend, of course, to leave standing. Another thing I have done this year I haven't been doing is leaving the poke berries alone. There is one place near the creek by my house where the poke berries grow by the thousands. Every year before this, we have cut them down, but in one of those pamphlets that you sent me I read where the birds eat them, and I surely haven't cut one since. I am trying to be a full pledged 4-H Club member if I am going to be one. My father and mother are very interested in the 4-H Club and help me with my bird food patch all they can. I have done more things than one to improve wildlife conditions. I have made several large signs which might be of a little help. At the top of it in large letters is printed, "No Hunting Allowed". My map of my farm isn't much, I have many other patches along fence rows scattered around the place.

We have sowed beans, cane, peas all for the birds too. We are not allowing any stray dogs around when we can help it. I have persuaded two of our neighbors to please put their dogs up. We are not allowing any hunting either. We don't have any cats to kill young birds, but one of our neighbors has. I have been talking lately to them very much about wildlife but it doesn't help very much, but the next time I do see it after a young bird on my farm, it isn't going to be awfully healthy for it. I have sowed over one-third of an acre of cowpeas especially for wildlife in North Carolina. I am hoping the hunting season for birds is made much shorter which I hope it will be later on in the future. My father doesn't hunt on his own farm for young birds, squirrels, rabbits, etc., or anything of the sort. No one has permission to hunt on our land. Last year we caught a man who was hunting on our place. It was out of season. He didn't have his license. No permission or anything of the sort. He

(Continued on Page 15)

THESE KAPPA SIGS WENT A-HUNTING

•

By Gordon Phillips,
Old Gold and Black,
Wake Forest College.

Smith Young has never fired a gun in his life. He has never been hunting but once. And yet the Lexington youth was arrested, tried, convicted and fined ten dollars Thursday for violation of the North Carolina game law.

It all came about when frat brothers Gene Worrell, Page Acree and Ralph Brummett decided it was high time Young got a little fun out of life. They took him hunting.

The first step was to procure a game license. So, off they took Young and got licenses which set each "innocent" brother back two of Uncle Sammy's berries. Young claims he asked the agent if doves were allowed to be shot and was told they were. But that's neither here nor there.

With shotguns of the double barrel type used in weddings, the happy fun loving brothers from Kappa Sigma took to the fields.

"Page and Ralph," said Worrell, who took command, "you all go out deep in the field, and I'll stay with Smith."

"I'm all set," remarked Young. "I don't know the first thing about this hunting, but we've all got licenses and everything is strictly kosher."

Worrell then proceeded to beat up the doves after he had placed Young in a shooting position behind a bush with a gun raised in air and finger on the trigger. A covey was located, Smith saw the birds, his gun was aimed when all of a sudden a voice called out to break the silence.

"What goes on here," it shouted as Young's heart was about to ring with joy.

"Shhh," hushed the basketball ace. "I'm about to kill my first killing. Be with you in a minute. Lie down and be quiet."

"Now take it easy boys," the voice crept up on the two Kappa Sigma lads.

"You're not a game warden, are you?" Worrell and Young asked. "It doesn't make any difference anyhow 'cause we got licenses."

"No, I'm no game warden," a big man remarked.

"Well that's different," popped off Smith, who grew bold. "We are just hunting doves."

All men at this point started slapping each other on the back, and the big man asked them if they were alone. To which the reply was that Page and Ralph were with them.

"They must join us," said the stranger, who called to the others.

This was done and bang, bang, the man pulls out a badge and hauls the four of them in for shooting doves out of season.

Not a shot was fired by innocent Smith Young.

"You're guilty," said the judge. "Ten dollars, please."

Each boy paid ten bucks for the guilty fine and two bucks for the license, making a net total of some $48 for two precious minutes of trying to go hunting.

Remarks Young, "I came, I saw, I was conquered. I'm as innocent as a dove. The hell with hunting."

NOTE: The big man mentioned above is Bob Perry, Wake County Game and Fish Protector.

SPORTSMANSHIP AND HUNTING SEASONS

(Continued from Page 7)

sary to have wildlife conservation officers, but discussions with numerous rabbit hunters have indicated that at least a great majority of them do not harm the quail.

One member of a sportsman's organization in Winston-Salem, N. C., stated in effect that the quail hunters really were not so much afraid of rabbit hunters as they were that many of the quail hunters would take advantage of the earlier rabbit season to get most of the good quail hunting before the legal quail season opened.

This brings up the old question of sportsmanship. One member of the Wake County Wildlife Club expressed a real sportsman's attitude when he said that he was in favor of staggered hunting seasons for the different game animals. He stated that he was always glad to go dove hunting, but that by the time the squirrel or rabbit hunting season arrived his interest in dove hunting had waned, but he was just as thrilled about hunting the squirrels and rabbits as he was the doves in the beginning, and that when the quail season arrived, the squirrel and rabbit hunting fever would have been replaced by the great desire to shoot the greatest little game bird—the bobwhite. In this way, the Wake County sportsman stated he would have many more

(Continued on Page 14)

NOTES and NEWS

FROM THE FIELD

"I know of several farms along the Waccamaw River Swamp that are visited each night by quantities of deer eating peas. It is interesting to note that these farmers won't allow these deer to be killed or even run with dogs. They say the deer sign in their fields brings back memories of approximately thirty years ago. If they hunt themselves, they go where the deer are hunted by the general public."

—John O. Pierce,
Special Game and Fish Protector.

"Some of the largest flights of geese that have been seen in years came into Ocracoke Thursday and Friday, November 10 and 11. They came in from the ocean following a south course from the village and filled our beaches and reefs full. It was the talk of the natives for two or three days."

—C. C. McWilliams,
Special Game and Fish Protector.

"A hunter who I checked Saturday, November 5, 1938, had killed a small deer that had sprouted horns which had not come through the hide. I asked him how he knew whether he was shooting a buck or a doe fifty yards away. He remarked, "That's easy, young man, I tell by the way they hold their ears."

—G. K. Eubanks,
Onslow Co. Game and Fish Protector.

"The sportsmen haven't been killing many deer this week, but what they did kill were very nice. I notice in talking with them that the clubs are more strictly emphasizing the fact that they don't want their doe deer killed this season. I think this is due largely because some of the clubs own their property now and are beginning to see what protection means."

—W. L. Rivenbark,
Refuge Protector, Burgaw, N. C.

FLEET FOOTED DEER "FLIES"

While cruising at thirty-five miles per hour in the direction of Little River township from Raeford, N. C., early on the morning of August 30, County Game and Fish Protector H. R. McLean got the surprise of his life when a crash was heard in the brush and a deer passed at full speed just in front of his car. Before he could stop, two had hurdled the hood of his car, crossing the lights and leaving toe marks on the hood, while the other crossing near the windshield, left a dent and many hairs as evidence that the incident really happened. While all this excitement was

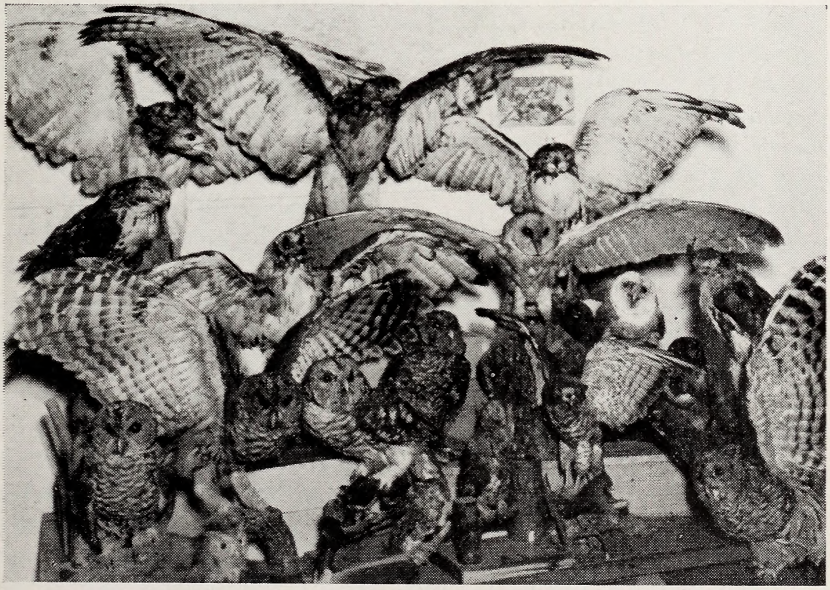
DON'T FORGET YOUR HUNTING LICENSE

in progress, a large doe, traveling at full speed, appeared within six feet of the car and fearing she was coming in, the Protector gave her a quick bow in order to make room for her entrance and to save himself from what appeared to be serious injury. Hearing no crash, the head was raised in time to see her hit the ground on the other side of the road. A checkup showed that she left the ground at the point where seen and went over the top of the car without touching it. Several others passed around the car.

Protector McLean says if they want protection he is willing to do his best to give it. However, he would rather they wouldn't be so hasty in seeking it. If they were putting on a parade for his benefit to show they are out in large numbers this year, he would appreciate it if they would give notice of such and have a little more respect for the reviewing stand.

DEPARTURE ASSURED

One certain way to hurry your departure from this world is to pull a loaded gun through a fence, muzzle first, when out hunting. In fact, to make your departure immediate, it is almost certain. Of course, if one prefers a slow departure, a good method is to lay a loaded gun in the bottom of a boat and then pick it up excitedly when you mistake a crow for a black mallard. By shooting a hole in



The twenty-one mounted specimens of protected hawks, owls and songbirds pictured above were confiscated by District Game and Fish Protector E. P. Keen. Sharp-shinned and Cooper's hawks and great horned owls are the only unprotected birds of prey.

the bottom of the boat one can drown slowly. It is effective, however, and will bring about the same results as shooting yourself through the head when leaning your tired arms on the muzzle of a loaded gun. To take chances is fun and if one cares to see how close he can come to departing this world, or only wishes to take a look at the "gates" from the outside, he might try standing the gun up against a fence, tree or some "wobbly" object and then have the dogs chase around and see how close they can come to knocking the gun down. Be sure the gun is loaded and if a hammer gun see that it is "cocked". Carrying a loaded gun in a car is also a "breath-taking" chance but so much fun, as it is unlawful also.

Of course, many will not care to "depart" just at this time, but having kindness in their hearts for the farmer on whose land they hunt, can promote the finest kind of ill will by shooting at everything that moves. What matter if the farmer's cow, horse or pig be behind that bush? The plan here is to shoot at every indistinguishable patch of color either moving or not. Of course, it may be the hired man or even the farmer himself. What does it matter? Such is only recommended when wishing to prolong your own life a few days. But it is the kind that hurries one's demise in that if some other fellow don't "get you" you will "get" yourself.

—*Iowa Conservation Weekly.*

SPORTSMANSHIP AND HUNTING SEASONS

(Continued from Page 11)

days of real hunting pleasure than he would if all the season came in at the same time.

While some quail hunters probably have just cause for wanting all seasons to open at the same time, the real solution for their problem will present itself as the degree of sportsmanship and a more complete understanding of the problems and values of wildlife become more prevalent throughout the State. And with these things must come more adequate wildlife protection in which there is a part waiting for farmers and other landowners as well as sportsmen and nature lovers.

That there is hope of developing a system whereby a greater amount of real sport hunting might be made available, partially at least through the controlling and staggering of hunting seasons, get a glimpse of the picture in one of the other states. In this state which 25 years ago had its back to the wall fighting to save the few remnants of its game animals, but which is now

recognized as one of the leading wildlife states in the Union, the seasons are about as follows:

Rabbits	Oct. 1-Jan. 31
Ruffed Grouse	Oct. 15-Oct. 27
Pheasants	Oct. 15-Oct. 27
Deer and Bear	Nov. 15-Nov. 30
Fox Squirrels	Oct. 15-Oct. 24

It might be argued that if it is desirable to have longer rabbit seasons in North Carolina, let them come in at the same time as the rabbit season, and extend after the quail season closes, but in this section, evidence indicates that the breeding season starts soon after February 15 and to destroy females which are about to have young again would not be good management.

Likewise to allow rabbit hunting before the latter part of November might allow the killing of many immature rabbits and as far as the rabbit season is concerned, it is now probably as long as it ever will be in this State, and if the hunting pressure increases in the future to the point where the supply materially decreases it will undoubtedly be necessary to shorten the season.

In the case of quail, it is apparent that considering the State as a whole, the amount of hunting for this bird is already too great for the supply of birds which can be produced each year under present conditions. The Division of Game and Inland Fisheries is trying to assure a future quail supply and is trying to increase the number of quail for future years by: (1) Improving quail habitats through the Coöperative Farm Game Program; (2) Offsetting the increased number of quail hunters by shortening the hunting season a few days, and (3) By improving law enforcement with the idea of eliminating some of the illegal killing and selling of these birds. With the coöperation of every citizen of North Carolina, the desired goal will be more quickly realized.

A LETTER FROM A 4-H CLUB MEMBER

(Continued from Page 9)

out-run my father—we couldn't get him, but about 3 weeks later we found it out. My map shows my food patches. Most all there are about 5 or 6 more which I didn't have room to get on there at all. When you send the judges around I will show them to you. I am trying very hard to win a prize—first if I can.

Yours truly,
(Signed) Miss Doris Bolton.

STATE LIBRARY OF NORTH CAROLINA
3 3091 00733 1077